Charitable and Parochial Establishments

BY

H. Saxon Snell.

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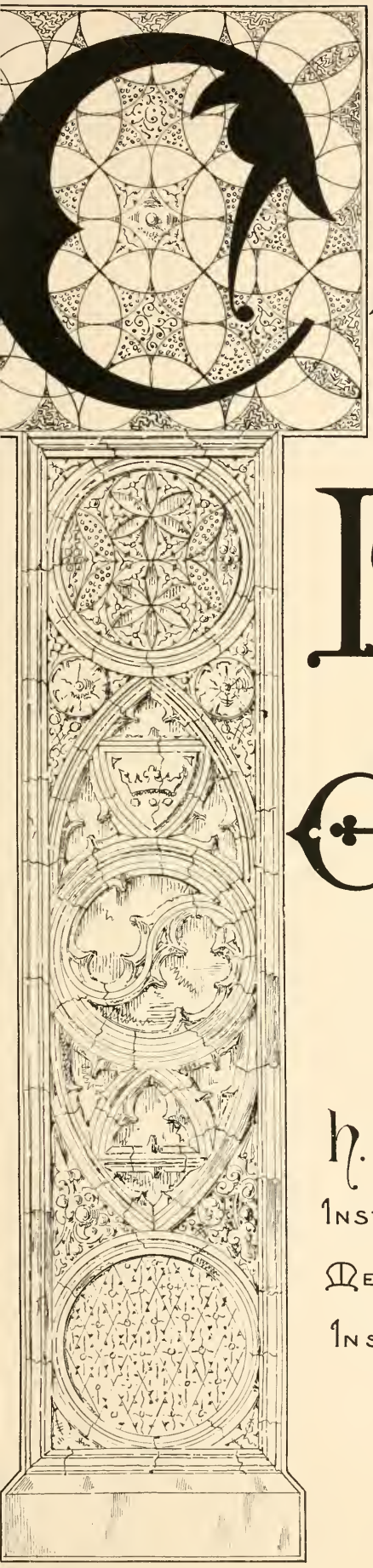

Charitable and Parochial Establishments

by

H. Saxon Snell, Fellow of the Royal Institute of British Architects, Member of Council of the Sanitary Institute of Great Britain, etc..

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THIS TITLE-PAGE IS A FAC-SIMILE OF A DESIGN AND DRAWING MADE BY AN INMATE OF ONE OF OUR LARGEST METROPOLITAN WORKHOUSES.

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PORTION OF St MARYLEBONE WORKHOUSE PRIOR TO RECONSTRUCTION

(THE FACSIMILE OF A PAUPER INMATE'S DRAWING.)

PREFACE.

IT is not without considerable hesitation that the author of this work ventures to submit to public criticism a selection of executed and unexecuted designs illustrating attempts to solve the question of How best to arrange Buildings for the Accommodation of the Poorer Classes of our community? No such work has, however, yet been published, and want of general information as to the present mode of planning this class of buildings has been much felt by those whose duties have, perhaps for the first time, led them to the consideration of the subject. If, therefore, as the result of this publication, other Architects are induced in like manner to give their experience to the world, the result cannot but be ultimately beneficial.

Those who have had experience with the Managers of Public Institutions will quite understand that an Architect cannot be held responsible for all the errors apparent in the designs of buildings erected under his superintendence; though, at the same time, it must be admitted that, in some few instances, there may be good features in those designs fairly attributable to the suggestions of his clients and their other advisers.

An Architect will best show ability by carrying out his instructions, whether they be right or wrong, in such a manner as to produce the best building attainable under the conditions that may be imposed upon him; always assuming, however, that he has, where he considers it advisable, pointed out in the first instance what, in his opinion, are the errors his clients propose to commit.

One of the greatest difficulties an Architect has to contend with in planning Public Buildings of the character illustrated in this book is the disinclination of his clients to contemplate any but immediate wants, and, consequently, they will often persistently refuse to enter upon the consideration of any probable future extension of the buildings over which they have control. If, for example, their present establishment consists of buildings erected 150 years or more ago, and one portion having fallen into decay has to be rebuilt, they will not be told that, as in the natural course of things the rebuilding of the whole structure must sooner or later follow, it would be advisable to prepare a design for its ultimate reconstruction on more modern principles, and in such wise that the part to be immediately rebuilt may form a congruous portion of the future new establishment. The result is that the planning of the reconstructed building is in many respects defective, even though the Architect may have done his best by anticipation to minimise the evil. Many other instances might be adduced in which an Architect is quite powerless to prevent imperfections in his executed designs, and certainly the author cannot point to any one public building erected under his superintendence where he has not been thus trammelled.

It does not always appear on the face of a design what conditions fettered the Architect in its production, and the author of this work trusts, therefore, to the kindly feeling and fairness of his critics to bear this in mind when commenting upon the work. He would

also ask that it may be remembered that when the first of the buildings illustrated in this book was designed some fifteen years ago, the present improved system of constructing eleemosynary buildings was in its infancy; indeed, it was only after the report of the Committee appointed to consider the cubic space of Metropolitan Workhouses, published in the year 1867, that the old system of planning fell into disuse. These earlier plans, therefore, were made when no good types existed for the assistance of the designer, and, consequently, they exhibit some defective points of detail that have been improved upon in the more recently constructed buildings.

The frontispiece of this book gives a very fair illustration of the character of the generality of Workhouse buildings as they existed from fifteen to twenty years ago, and it may be of melancholy interest for readers to learn that the original drawing of this frontispiece was made by one of the members of a family of eminent artists, though unfortunately a pauper inmate of the Workhouse. His name, attached to the original drawing, has, for obvious reasons, not been reproduced.

As a further matter of sad curiosity, attention may be drawn to the title page of this work, which is a *fac simile* of the design of a well-known Architectural Artist, also, through misfortune, a pauper inmate of a Metropolitan Workhouse.

When it is considered how large a proportion of the population of our Workhouses and other charitable buildings are inmates solely by reason of infirmities to which all of us are more or less liable to succumb, and that the majority of them are the aged and decrepit, who, through no fault of their own, are irretrievably destitute, it will be readily admitted that it is a wise and humane policy which induces the governing authorities of these Institutions to do all in their power to soften the rigour of the law by providing buildings wherein the declining years of the afflicted and aged poor may be passed in comparative comfort, and the sick rapidly restored to convalescence, whereas the buildings provided for the habitual tramps and able-bodied impostors are made as deterrent and uninviting as possible. Such, it will be seen, has been the general motive governing the designs of the buildings illustrated in this book.

Infirm Wards—St. Marylebone Workhouse.

NORTHUMBERLAND STREET, LONDON, W.

IN the year 1867 the corner building of St. Marylebone Workhouse, represented in the frontispiece of this work, was found to be in so dilapidated a state, that its removal became imperative, and, the establishment being at the time overcrowded, the Guardians felt compelled to rebuild this portion, not, however, without considerable reluctance, as the lease of the premises had but twenty years to run. The site when cleared was found to be 104 feet by 65 feet, and additional accommodation was required for nearly 250 inmates; but it was found that, to build for so large a number, it would be impossible to carry out the recommendations laid down by the Government authorities for the planning of this class of building; for, as the freeholders objected to the structure being carried higher than three stories, it was necessary that the Wards, to hold the required number of inmates, should be nearly sixty feet in length. Ultimately, however, the Local Government Board (at that time the "Poor Law Board") gave their assent to the erection of the Building on the plan designed by the author, but only after much hesitation, and then on the presumption that it would be removed in a few years when the lease expired.

Inasmuch as it had been predicted that it would be impossible to properly ventilate a building constructed upon such a plan, very great pains were taken to make ample provision in the design for the inlet of fresh air to the Wards and the outlet of foul air, and to this end channels were constructed from the front to the back walls, running under the heads of all the beds for the admission of fresh air, and the side walls next the beds being made two bricks thick were filled with upright flues 18 inches by 9 inches, for conveying away any vitiated air to above the level of the roof. As a further precaution a boiler was erected in the basement, and steam-pipes passed through all the above flues in order to better induce an upward current in them. This apparatus was, however, soon dispensed with, as the natural ventilation was found to be sufficient, and these Wards are to this day considered to be amongst the best-ventilated in the Metropolis.

It is singular that this building, planned as it was in such apparent opposition to the rules laid down by the most eminent authorities, should practically have been found to be the best adapted for the class of inmates for which it was designed.

Dr. Bridges, the Local Government Board Inspector, having visited the building shortly after it was occupied, writes: "It is difficult to speak of these Wards too highly. "The proportions, general arrangement, space allotted to each patient, the lavatories, and the "whole system of ventilation are excellent."

Since that time the Guardians have obtained an extension of their lease, and as a commencement of the entire reconstruction of the Workhouse premises they have had erected a long range of Wards in continuation of the above building and upon a similar plan.

It will be seen, by further illustrations in this book, that an extensive range of buildings, on a very similar plan, has since been erected from the author's designs for the Guardians of the Holborn Union, at St. Luke's Workhouse, City Road, and that, as the width of the site admitted it, the planning of the central portion, containing Nurses' Rooms and other offices, has been somewhat improved.

The accommodation of the block of buildings at St. Marylebone Workhouse, herein illustrated, is for 240 Female Infirm Paupers as follows, viz.:—

	Area in ft.		Area in ft.
Six Wards, each for 40 Inmates (to be occupied by day and night) ... each	2,354	Three Lavatories ... ... each	68
Two Nurses' Rooms ... ... ,,	148	Space for w.c.'s, Slop Sinks, Linen Closets, &c., on each Floor.	
Three Bath Rooms... ... ... ,,	73	Furnace Room, Coal Store, Meter Room, &c.	
Three Sculleries ... ... ,,	67		

TO

THE RIGHT HON. J. G. DODSON, M.P.

PRESIDENT OF THE LOCAL GOVERNMENT BOARD

THIS WORK IS WITH PERMISSION

RESPECTFULLY DEDICATED

BY HIS

OBEDIENT SERVANT

THE AUTHOR

LONDON, *June* 1881

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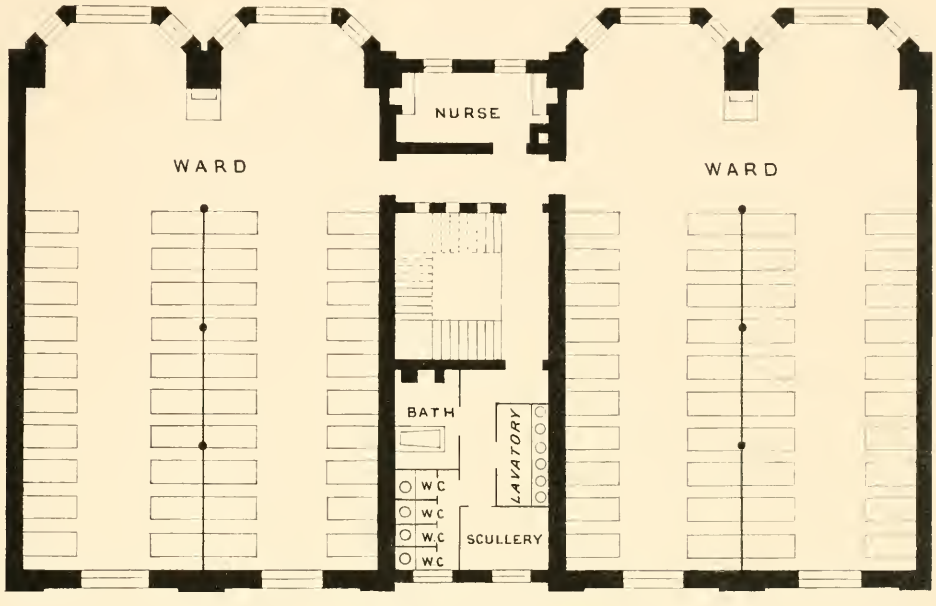
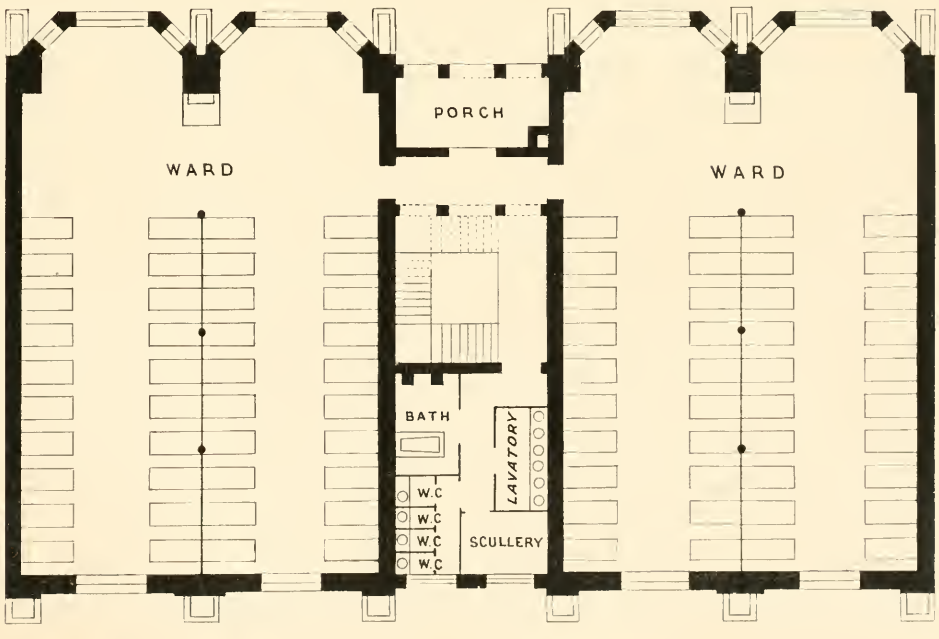
St Marylebone Workhouse

Northumberland Street W. – Infirm Wards.



First Floor Plan.

Second Floor is similar



Ground Plan.

Scale of Feet

10 5 0 10 20 30 40 50

H. Saxon Snell F.R.I.B.A

Waterlow & Sons Limited, London Wall, E.C.

St. Luke's Workhouse.

SHEPHERDESS WALK, CITY ROAD.

THESE BUILDINGS, so far as they have at present been reconstructed, are intended for the reception of Chronic and Infirm Paupers of Holborn, Finsbury, Clerkenwell, and seven other smaller Parishes and Districts of London. Accommodation is, however, provided for a sufficient number of able-bodied Inmates to assist in the work of the House.

The main Wards are generally designed upon the same principle as those last described for St. Marylebone Workhouse, but, being narrower, they are in many respects better arranged.

The end block of Male Wards is planned somewhat differently to the others, as it was desired that the bay windows might overlook the City Road.

The area of the site of this Workhouse is very small, being only one acre and four-fifths, and it was consequently difficult to avoid the objectionable position of the Laundry and other like offices beneath the Wards, as also the proximity of the Wash-house to some of their windows. This, where possible, should be avoided in any similar buildings.

The Guardians of the Holborn Union are equally as well pleased with the general arrangement of the Wards as the Marylebone Guardians are with theirs; and there can be no doubt that for Chronic and Infirm Inmates occupying their Wards during the day as well as at night-time, this plan of building offers many advantages over the old system.

The accommodation of the block of buildings illustrated is for 448 Female Infirm, 328 Male Infirm, 80 Able-bodied, and 20 Lying-in Cases; also, a Master's Residence and Officers' Quarters, Kitchen and Laundry, &c. The old buildings likewise contain accommodation for about 375 Inmates of various classes, so that provision has been made in the Kitchen and Laundry for the requirements of 1,251 Inmates besides Officers.

	Area in ft.
Female Infirm:	
8 Wards, each for 56 Inmates (to be occupied by day & night), and each	3,530
2 Nurses' Rooms ... ... ,,	238
1 ,, ,, ...	329
4 Bath Rooms ... ... each	156
4 Sculleries ... ... ,,	103
4 Lavatories ... ... ,,	138
4 Linen Rooms ... ... ,,	64
Each floor has 5 w.c.'s, one Slop Sink, &c.	
Boiler Room, Coal Cellar, Meter Room, &c.	
Male Infirm:	
3 Wards, each for 40 Inmates (to be occupied by day & night), and each	2,565
1 Ward for 40 Inmates (to be occupied by day and night) ...	2,400
3 Wards, each for 56 Inmates (to be occupied by day & night), and each	3,550
1 Ward for 42 Inmates (to be occupied by day and night) ...	2,667
1 Nurse's Room	143
3 ,, ,, ... each	270
4 Bath Rooms ... ... ,,	88
4 Sculleries ... ... ,,	107
4 Lavatories ... ... ,,	58
4 Linen Rooms ... ... ,,	143
Each floor has 3 w.c.'s, 4 Urinals, Slop Sink, &c.	
Smoking Room for men in Basement.	
N.B.—This room is wrongly marked on plan "Store."	
Boiler Room, Coal Cellar, Meter Room, &c.	

	Area in ft.
Able-Bodied:	
Dormitory for 80 Female able-bodied Helpers	2,708
Dormitory for 12 Night Nurses ...	432
Lying-in Ward for 20 Females ...	2,060
Labor Room	238
,, ,, ...	316
Nurses' Room	168
Linen Room	42
Bath Room	117
Scullery	41
w.c.'s, Slop Sink, &c.	
Administrative Offices:	
Waiting Room	432
Porter's Office	27
Receiving Ward for Males... ...	328
,, ,, Females ...	468
Attendants' Room	88
1 Bath Room to each, and each ...	85
1 w.c. to each, and each	20
Committee Room	438
,, ,, Lavatory and w.c.	69
Master's Office	123
Clerks' Office	358
Matron's Office	156
Master's and Matron's Drawing Room	251
Master's and Matron's Dining Room	251
N.B.—This room is wrongly marked on plan "Bed Room."	
Master's and Matron's Kitchen ...	101
,, ,, Bed Room...	207
,, ,, ,, ...	127
,, ,, ,, ...	156

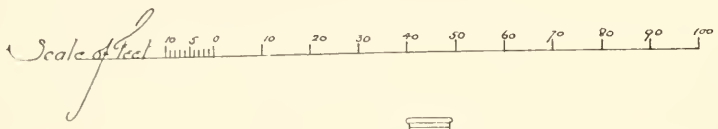
	Area in ft.
Master's and Matron's Bath Room	73
Assistant Master's Sitting Room ...	112
,, ,, Bed ,, ...	156
Assistant Matron's Sitting Room ...	105
,, ,, Bed ,, ...	131
Porter's Sitting Room	123
,, Bed ,, ...	123
,, Kitchen	105
,, Coal Cellar, w.c., Pantry, &c.	
General Kitchen	1,900
,, Scullery	273
Bakery	251
Store Rooms, Larders, &c....	6,784
Paupers' own Clothing Store ...	1,000
Ditto	245
Coal Vaults	1,960
Laundry, &c.:	
Receiving Room	203
Wash-house	1,350
Drying Room, with Horses ...	775
Airing Room	291
N.B.—This room is wrongly marked on plan "Drying Room."	
Ironing and Folding Room ...	1,884
Furnace Room	200
Clean Linen Store and Delivery Room	546
Engine and Pump Room	494
Boiler Room	584
Furnace Coal Store	110
Disinfecting Chamber	53
Furnace Room	85

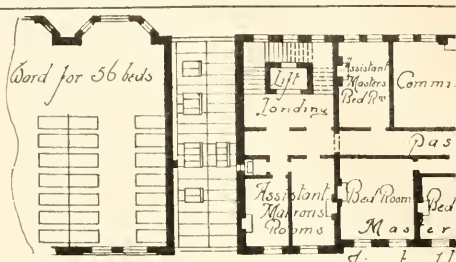
Photo Lithographed & Printed by James Akerman, 6 Queen Square W C

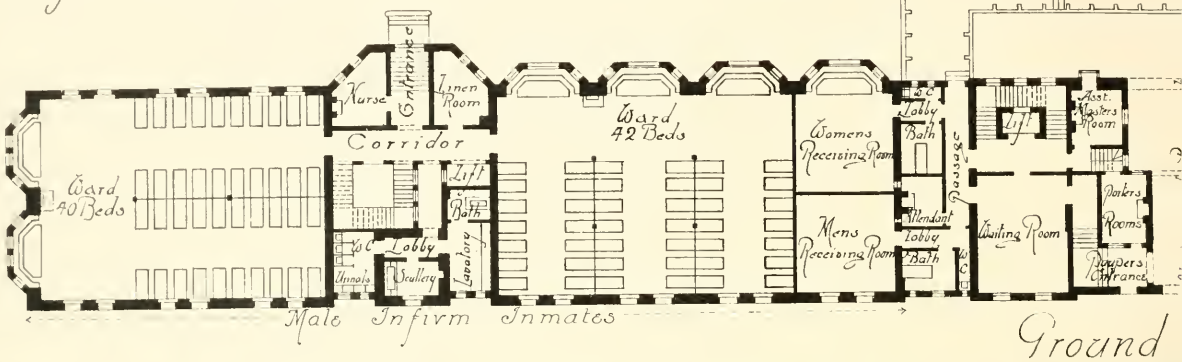
St Lukes Workhouse

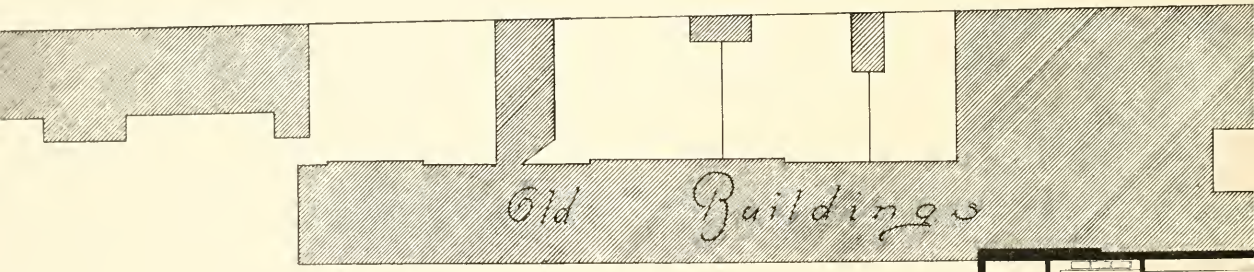
Shepherdsfs Walk

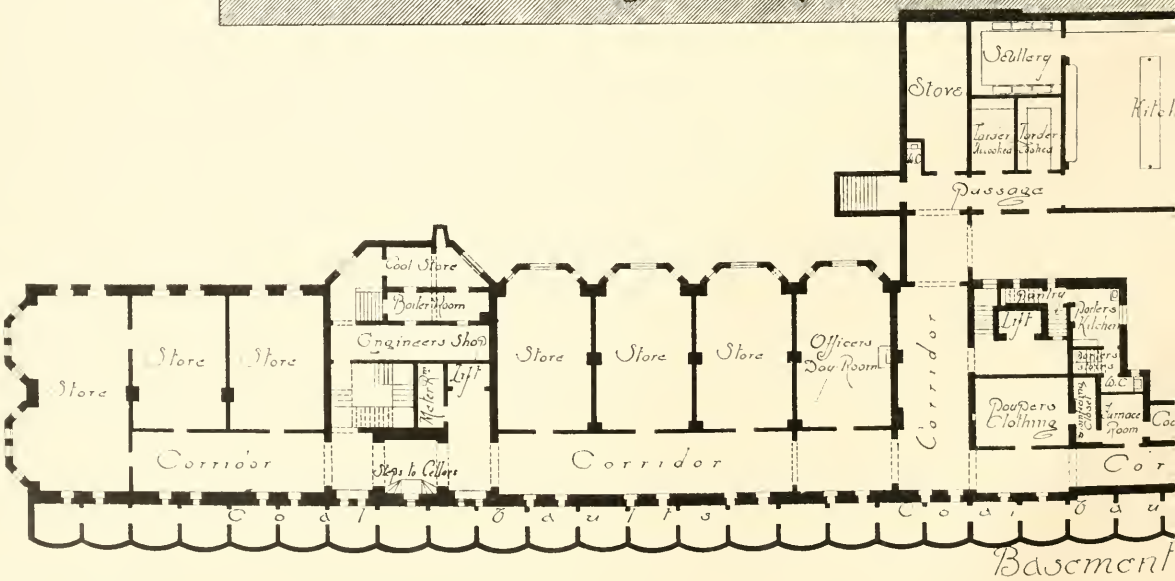
Rs-rebuilt











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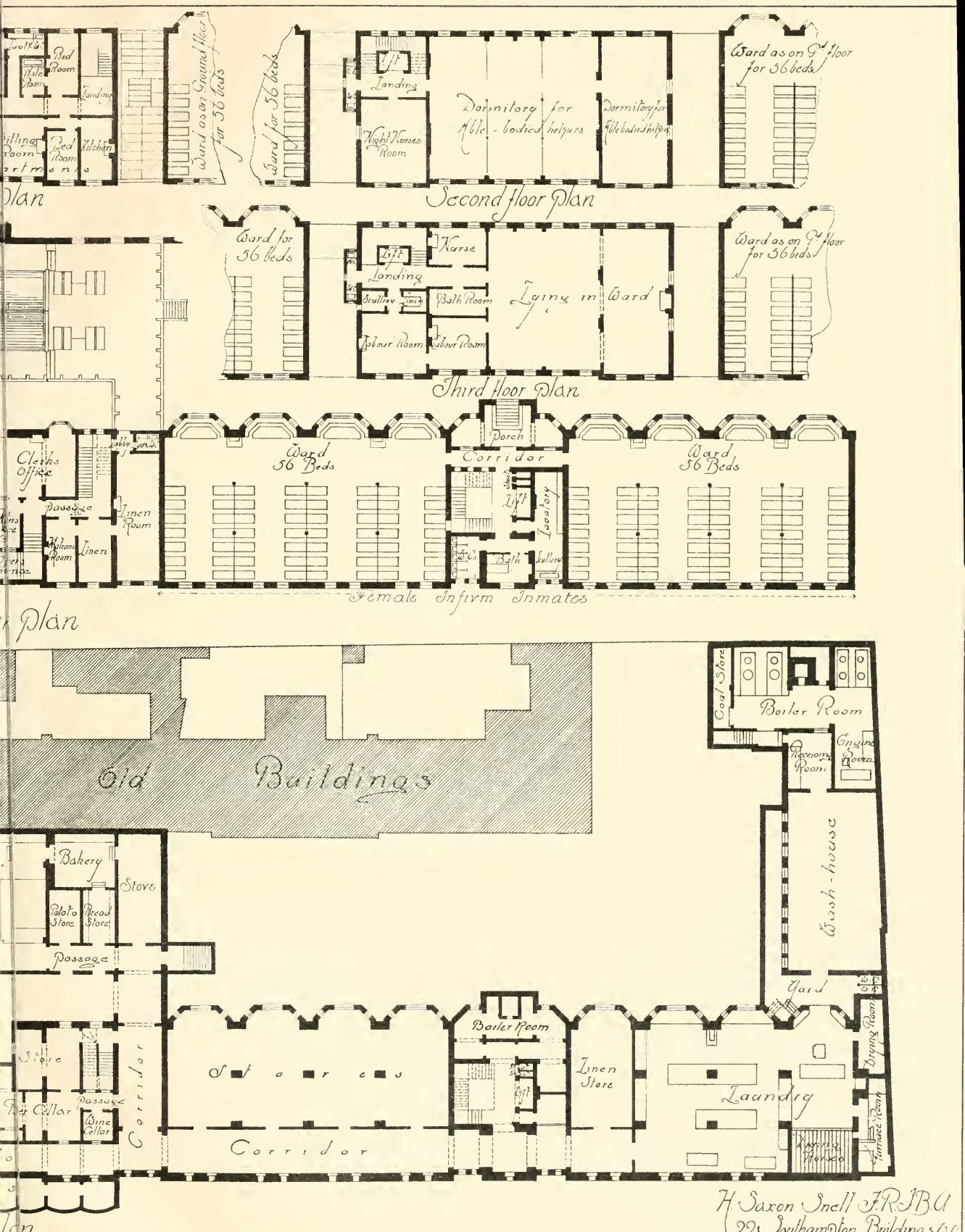

Ward as on Ground Floor for 56 beds
Ward for 56 beds
Landing
Night Nurses Room
Dormitory for able-bodied helpers
Dormitory for Able bodied helpers
Ward as on 1st Floor for 56 beds
Second floor Plan
Ward for 56 beds
Nurse
Landing
Scullery
Sink
Bath Room
Lying in Ward
Labour Room
Labour Room
Ward as on 1st Floor for 56 beds
Third floor Plan
Clothes Office
Passage
Linen Room
Linen
Ward 56 Beds
Porch
Corridor
Lift
Lavatory
W.C.s
Bath
Scullery
Ward 56 Beds
Female Infirm Inmates
Old Buildings
Coal Store
Boiler Room
Engine Room
Bakery
Stove
Potato Store
Bread Store
Passage
Wash-house
Yard
Store
Wine Cellar
Passage
Wine Cellar
Corridor
Corridor
Boiler Room
Lift
Linen Store
Laundry
Drying Room
Furnace Room
H. Saxon Snell F.R.I.B.A.
22 Southampton Buildings W.C.

St. Olave's Union Infirmary.

DEPTFORD LOWER ROAD, ROTHERHITHE, LONDON, S.E.

THIS INFIRMARY, opened after re-enlargement by the Guardians, without ceremony, in 1879, and now accommodating 377 Patients, is an enlargement of one that contained 50 Inmates only, and is for the accommodation of the Sick Poor of the Parishes of St. Mary Rotherhithe, St. Olave's, Bermondsey, and two other smaller parishes. At first it was enlarged for the reception of 165 Patients only, but it had hardly been occupied twelve months before it was determined to still further increase the number. The extent of the site is about two acres.

The plans where etched indicate how small a part of the old building now remains, and it will be apparent that it would have been better, and perhaps more economical, had this old portion been removed and the new establishment entirely planned upon more modern principles. The building, however, notwithstanding the difficulties under which it has been designed, is found to be commodious and generally well-planned for the accommodation of the number of Patients and Officers it provides for. An inspection of it would be found interesting from the comparison it affords between the details of the old portion of the buildings and those of the Wing erected upon the more modern system of constructing Infirmaries.

The casement windows, described at page 19, were introduced for the first time in this building; the hot water open fire-grates, described at page 21, are also to be seen here, and these latter may be seen in action almost side by side with the old-fashioned central fire-places.

The system of hot-water heating and ventilation adopted in the Male Wing of this building is of an extremely novel and effective description, and the author hopes to be able in a future work to fully illustrate the method. It may, however, be described generally as consisting of horizontal hot-water circulating pipes running round and beneath the ground floor of the building, and having branches ascending through flues in the external side walls: these flues form ducts for the outer fresh air to pass into the Wards, and the air so admitted becomes heated in its passage through these flues by impingment against the hot-water pipes. The pipes are further made to pass through the extraction shafts, and in this way they assist the withdrawal of foul air from the Wards.

At the time this building was designed it was thought best that no Bath and Lavatory Rooms should be provided, but that the Baths should be constructed on wheels so as to be taken to the bedside of the Patients when required, and when not in use that they should, together with the Lavatory Basins, stand open to view on the staircase landing.

This arrangement was considered desirable because the Lavatories and Bath Rooms in similar institutions are often found to be receptacles for dirty rags and other objectionable accumulations. In practice, however, it is found that no greater cleanliness exists when the Baths and Lavatories are exposed to view in the manner described, and this experiment simply proves how desirable it is that every Infirmary Ward should be provided with a separate Bath Room. The Closets, &c., at the south-west end of the Male Wing of this building had to be taken down for the erection of a Water Tower, consequent upon the failure of the Company to give an efficient supply, and advantage was taken of this to erect an additional Bath Room to each of the adjoining Wards.

In planning the central portion of the Sick Ward Wings of these buildings, provision was made on each floor for two Nurses' Rooms, to be occupied as combined Sitting and Bed Rooms, and, in addition, a Ward Scullery for their joint use. It is, however, in practice, found better that the Nurses' Sleeping and Sitting Rooms should be entirely away from the Wards in the Central Administrative Block, and then that each Ward should have attached to it a Room for the use of the Nurses when on duty, fitted as a kind of combined Scullery, Kitchen, and Sitting Room.

The "Small Wards" are occupied as Day Rooms, excepting on those floors where all the Patients are confined to their beds, and then these Rooms are used as Wards for the separation of special cases of sickness.

The buildings contain the following accommodation, viz. :—

	Area in ft.
Male Sick Wing:	
6 Wards, each for 32 Beds, and each	2,304
3 Day Rooms, to be used when required as Separation Wards for 4 Beds, and each	288
3 Sculleries ... ... each	120
3 Nurses' Rooms ... ... ,,	120
3 ,, ,, ... ,,	100
3 Bath Rooms ... ... ,,	72
Each floor has 5 w.c.'s, 2 Sinks, and 1 moveable Bath, also Lavatories, Sinks, and Linen Closets placed in Lobbies and in recessed portions of Staircases.	
Female Sick Wing:	
3 Wards, each for 30 Beds, and each	2,208
2 ,, ,, 29 ,, ,,	2,053
1 ,, ,, 33 ,, ,,	950
3 Day Rooms to be used when required as Separation Wards for 4 beds each, and each	289
3 Sculleries ... ... each	120
3 Nurses' Room ... ... ,,	120
3 ,, ,, ... ,,	98
There are 5 w.c.'s, 2 Sinks, &c. on 2 floors, and 4 w.c.'s, Sink, &c. on ground floor; also, on each floor, 1 moveable Bath, and Lavatories, Sink, and Linen Closets placed in Lobbies and in recessed portion of Staircase	
Boiler Room and Coal Cellar in Basement	316
Administrative Offices:	
Entrance Hall and Waiting Room	100
Porter's Sitting Room	168
,, Bed ,, ...	124
Outhouse, containing w.c., Dust Bin, Meter, &c.	60
2 Receiving Wards for Males and Females ... ... each	212
Bath Room to each, and each ...	52
Each Receiving Ward has 2 w.c.'s, 1 Sink, &c.	
Committee Room	300
,, ,, Lavatory, Cloak Room, w.c., &c.	66
Dispensary	143
Medical Officer's Consulting Room	160
Matron's Office and Store Room ...	275
Steward's Office	185
Medical Officer's Sitting Room ...	325
,, ,, Parlour	193
,, ,, Kitchen	180
,, ,, Scullery	124
,, ,, Store and Larder, each	25
,, ,, Bed Room ...	177
,, ,, ,, ...	161
,, ,, ,, ...	145
,, ,, Bath Room ...	54
,, ,, Coal Cellar, Wine ditto, &c. ...	120
,, ,, w.c.'s, Store Room, &c.	
Matron's Sitting Room	297
,, Kitchen	110
,, Bed Room	209
,, ,, ...	196
,, Bath Room	77
,, w.c., &c.	
Steward's Sitting Room	342
Steward's Bed Room	216
,, Bath Room	126
,, w.c., &c.	
Engineer's Living Room	150
,, Bed Room	80
,, Larder, w.c., &c.	
Nurses' Dormitory	747
,, ,, ...	507
,, ,, ...	225
5 Nurses' Rooms ... ... each	188
,, Bath Room	56
,, w.c.'s, &c.	
General Kitchen	750
,, Scullery	306
Buttery, Larders, Pantries, and General Stores	2,016
Officers' Mess Room	432
Cooks' Room...	216
Inmates' Clothing Store	350
General Coal Store	471
Store Room and 2 Cistern Chambers in Tower ... ... each	204
Dead-house	350
Post-mortem Room	144
Dust Shed	55
Laundry, &c.	
Receiving Room	240
Wash-house	700
Drying Room, with Horses ...	315
Ironing and Folding Room ...	700
Clean Linen Store or Delivery Room	240
Engine and Boiler Room	200
Disinfecting Closet	38
w.c.'s, &c.	

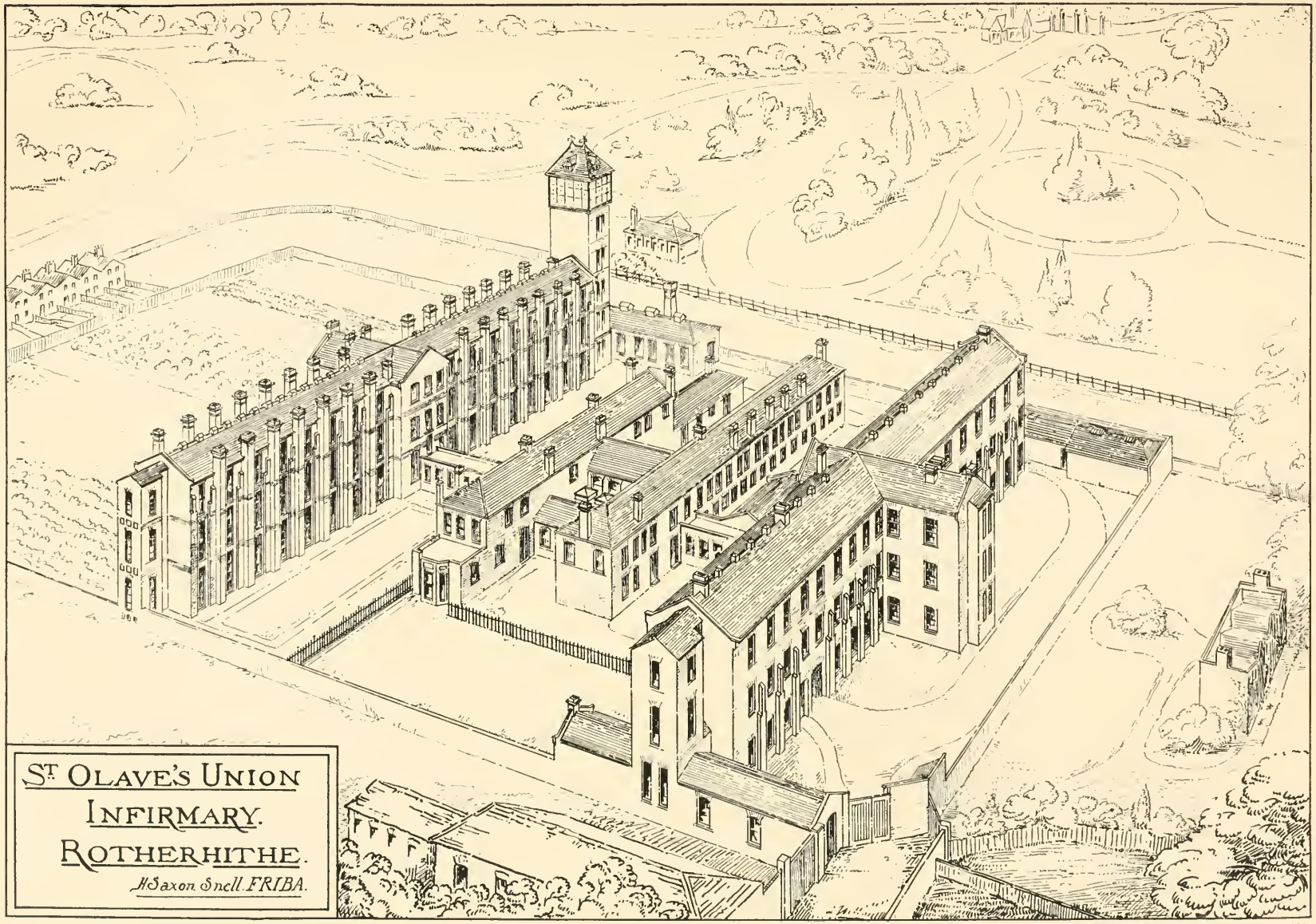
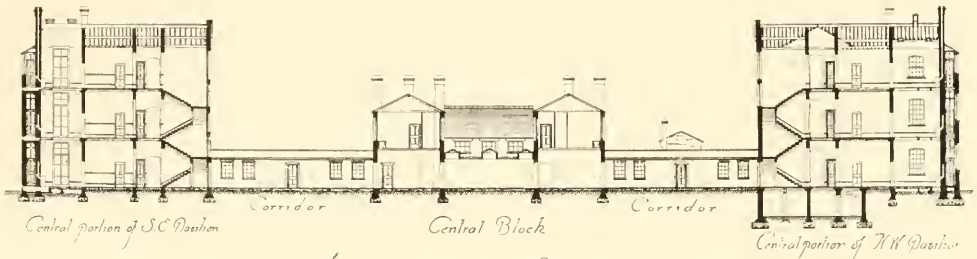


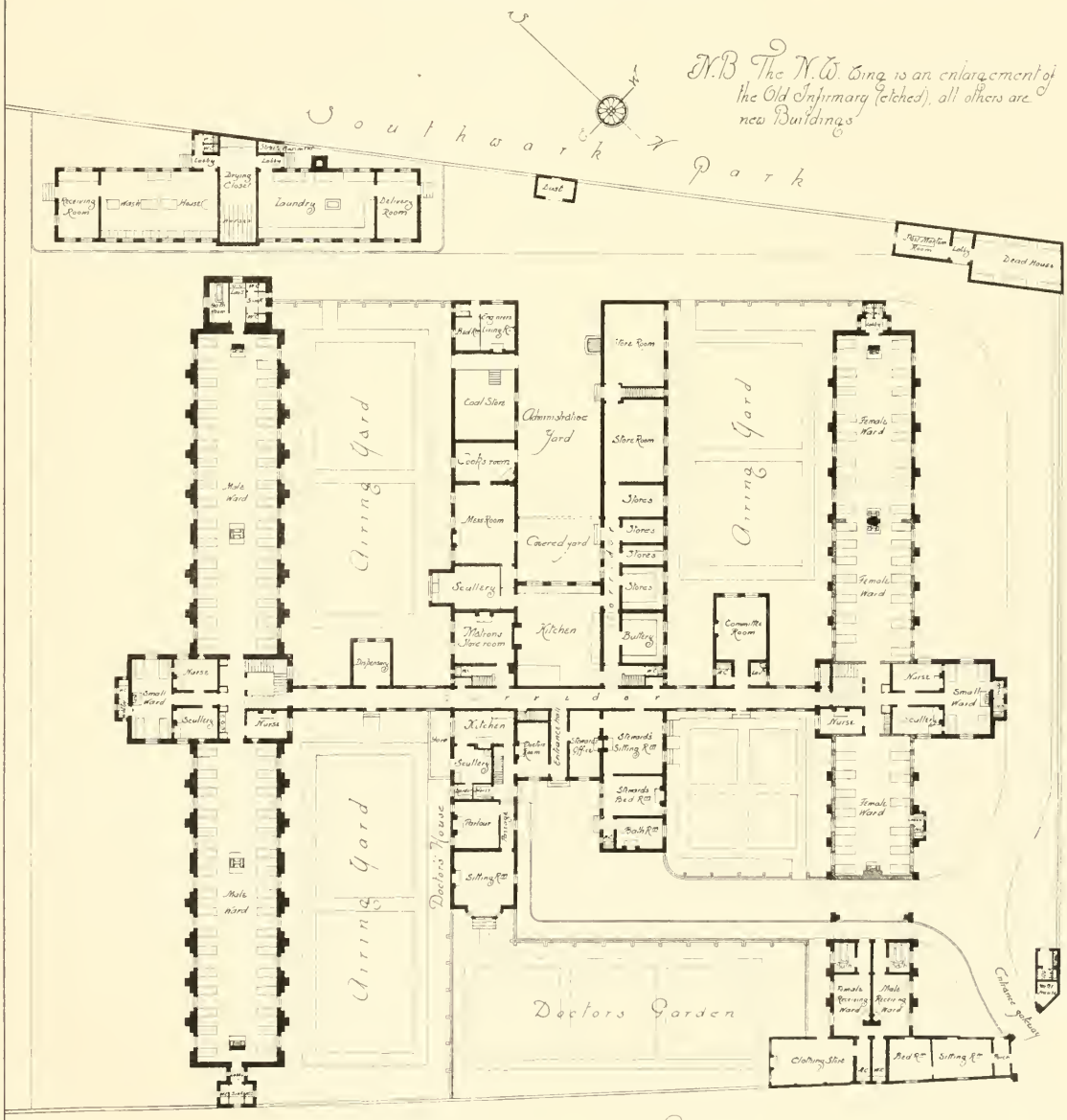
Photo-Lithographed & Printed by James Akerman 6 Queen Square W.C.

St Olaves Union Infirmary Rotherhithe



Transverse Section

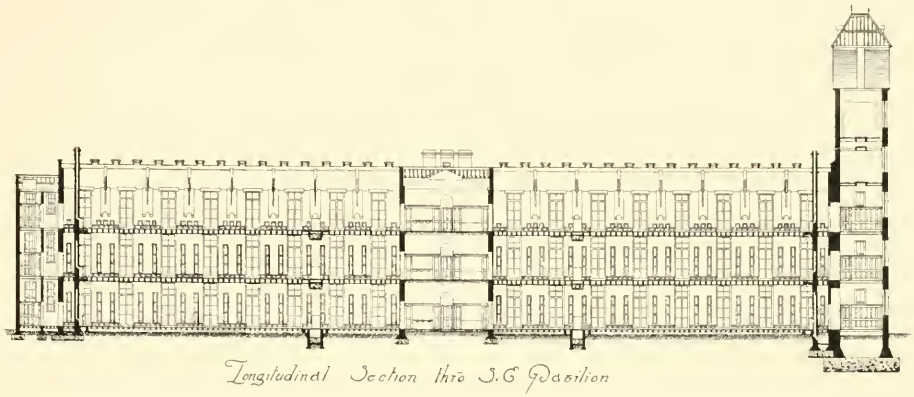
N.B. The N.W. Wing is an enlargement of the Old Infirmary (etched), all others are new Buildings



Plan of Ground Floor

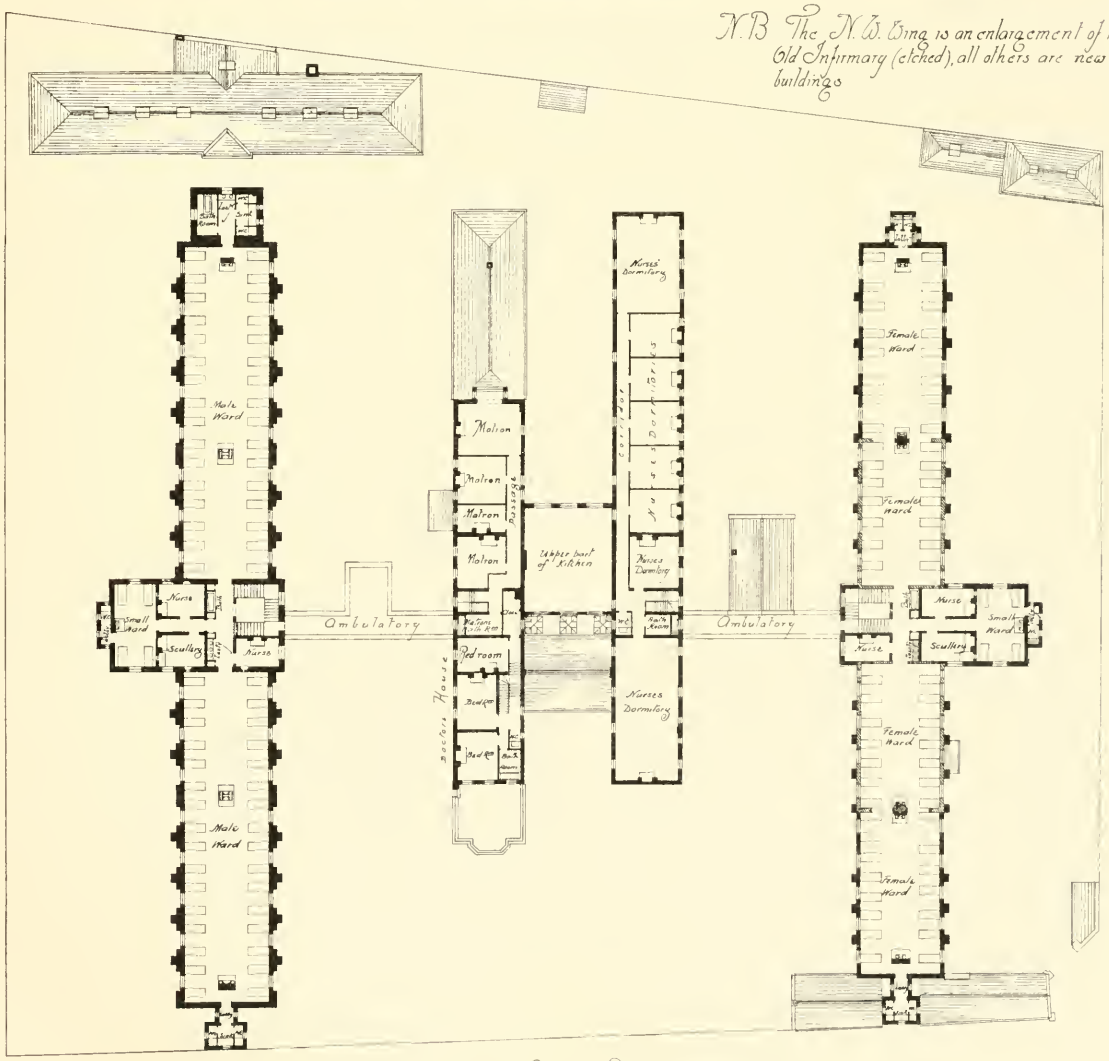
Scale of Feet

St Olaves Union Rotherhithe Infirmary



Longitudinal Section thro S.E Pavilion

N.B The N.W. Wing is an enlargement of the Old Infirmary (etched), all others are new buildings



Plan of First Floor (Second floor Plan of Wards is similar)

Scale of Feet 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

H. Saxon Snell F.R.I.B.A. Archt.

St. George's Union Infirmary.

FULHAM ROAD, LONDON, S.W.

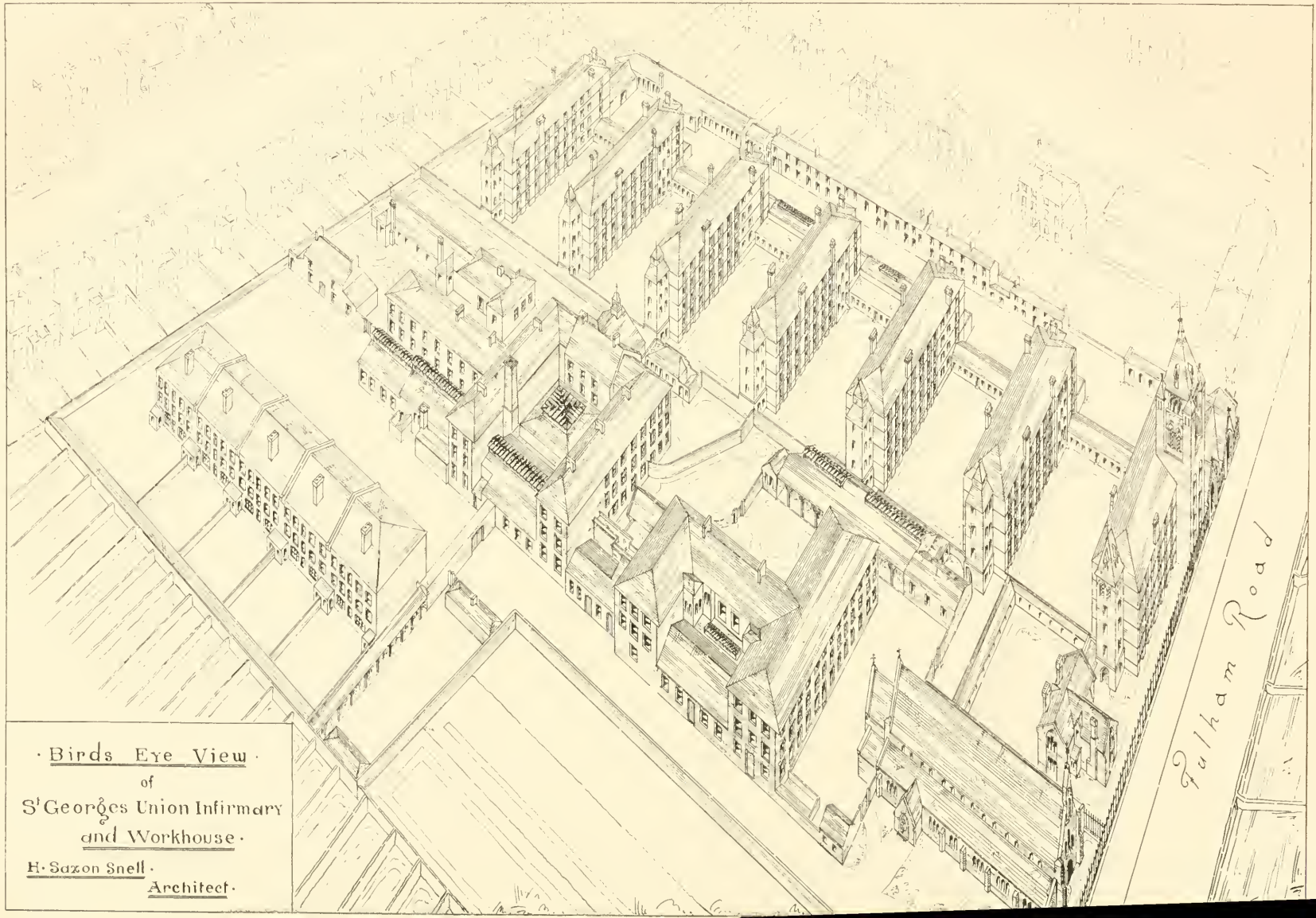
THE foundation stone of this building was laid July 26th 1876, by Hugh Horatio Seymour, Esq., J.P., Chairman of the St. George's Union, Hanover Square, and was opened February 20th 1878, by The Right Hon. G. Sclater-Booth, M.P., the then President of the Local Government Board. It is erected for the accommodation of the Sick Poor of the Parishes of St. George's Hanover Square, and St. Margaret's and St. John's Westminster, and it contains the largest number of inmates (808) of any Infirmary or Hospital in the Metropolis.

The extent of the site is very limited, being only about two and three-quarters acres, and in consequence some of the Administrative Apartments are rather more confined for space than they should be. There is also an absence of proper recreation grounds and gardens for the Officers, and the Pavilions, which are four stories in height, are closer together than is ordinarily considered desirable. Nevertheless, the arrangement of the Sick Wards is generally found to be satisfactory, and, with the exception of one or two details, may be taken as a good example. It would have been an improvement if the planning of the Bath Rooms and w.c.'s at the ends of the Main Wards had been similar to that of the St. Marylebone Infirmary Wards (*see* page 17), as it is in practice much more desirable that there should be separate Bath Rooms; but, as I have before stated, there is a prejudice in the minds of some competent authorities against this arrangement, they deeming it desirable that the Bath should be on wheels, and when used taken to the bedside of the patient.

The Sick Wards in this building are provided with the combined casement and lifting sash windows, described and illustrated at page 19 of this work, and they are found in practice to have all the merits that are there claimed for them. The thermhydric open fire grates, illustrated at page 21, are also to be seen here in successful operation.

The buildings generally contain the following accommodation, viz. :—

	Area in ft.
Pavilions generally:	
26 Wards, each for 28 Beds, and each	2,016
20 Day Rooms, to be used when required as Separation Wards for four Beds each, and each ...	306
23 Nurses' Duty Rooms ... each	144
3 ,, ,, ... ,,	289
Each Sick Ward Floor has 3 w.c.'s. 1 Sink, 2 Linen Closets, 2 Lavatories, and a moveable Bath.	
Each Pavilion has on the ground floor a w.c. for the use of the Officers.	
Each Pavilion is provided with a direct-acting Hydraulic Lift; and, in the Basements, there are Furnace Rooms containing Boilers for heating purposes.	
The Staircases surrounding the Lifts, as also the Corridors, are all of York stone supported upon brick vaulting, so that these portions of the buildings are fireproof	
Administrative Offices:	
Entrance Hall	166
General Waiting Room	298
Porter's Office	180
Committee Room	517
,, ,, Lavatory and w.c., &c.	49
Dispensary	226
Chaplain's Room	104
Matron's Office	133
Steward's Office	104
Medical Officers' Consulting Room	104
Medical Officers' Drawing Room ...	298
,, ,, Dining Room ...	283
,, ,, Study	92
,, ,, Kitchen	172
,, ,, Scullery	71
,, ,, Coal Cellar, Larder, Beer Cellar, &c.	
,, ,, Bed Room ...	201
,, ,, ,, ...	112
,, ,, Two Bed Rooms, each	139
,, ,, Bath Room ...	56
,, ,, w.c., China Closet, &c.	
2 Assistant Medical Officers' Sitting Rooms ... ... each	136
2 ,, ,, ,, Bed Rooms each	136
1 ,, ,, ,, Bath Room	104
1 ,, ,, ,, Kitchen ...	133
,, ,, ,, w.c., &c.	
Matron's Sitting Room	256
,, Bed Room	336
,, ,, ,, ...	195
,, Kitchen	126
,, w.c., Larder, Linen Closet, &c.	
Steward's Sitting Room	208
,, Bed Room	284
,, ,, ,, ...	190
,, Kitchen	117
,, w.c., Larder, Linen Closet, &c.	
Porter's Bed Room...	146
Engineer's Living Room	144
,, Kitchen...	176
,, Scullery...	49
,, Bed Room	144
,, ,, ,, ...	176
Engineer's Larder, Coal Cellar, Dust, w.c.'s, &c., &c.	
11 Nurses' Rooms, average each ...	93
6 ,, Rooms, average each ...	200
2 ,, ,, ,, ,, ...	210
14 ,, ,, (on top floor of one Pavilion) average each	120
1 ,, ,, ,, ,,	306
3 ,, Bath Rooms, average each	90
,, w.c.'s, Lavatories, Linen Room, &c.	
General Kitchen	1,422
,, Scullery	182
Officers' Mess Room	575
Buttery, Larders and Kitchen Stores	893
General Store	1,422
General Coal Store	1,060
w.c.'s, Dustholes, &c., &c.	
2 Store Rooms in upper part of Tower ... ... each	131
Laundry, &c.:	
Receiving Room	506
Wash-house	1,182
Drying Room with Horses ...	538
Ironing and Folding Room ...	1,182
Clean Linen Store and Delivery Room	407
Wash-house for Officers' Clothing	145
Ironing Room	275
Laundress' Room	128
Disinfecting Chamber	77
Engineers' Shop and Furnace Room	519
Boiler and Engine Room	315
Coal Cellar for Furnace Coals ...	120
Inmates' Own Clothing Store ...	455
Dead-house	261
Post-mortem Room...	220



· Birds Eye View ·
of
St Georges Union Infirmary
and Workhouse ·
H· Saxon Snell ·
Architect·

St. GEORGE'S · UNION · INFIRMARY

FULHAM ROAD · S.W

Chapel
Porch
Organ Chamber
Chancel
Vestry
Porch
Corridor to Chapel
Infirmary Doctors House
Dining Room
Doctors Drawing Room
Passage
Study
Covered Way
Corridor to Chapel
Assistant Doctors Bedroom
Assistant Doctors Sitting R.
Corridor
Bath R.
Kitchen
Chaplain
Stewards Office
Matrons Office
Hall
Consulting Room
Waiting Hall
Recreation Ground
Ward
Recreation Ground
Ward
Recreation Ground
Nurses Room
Nurses Room
Entrance
Corridor
Corridor
Corridor
Porters Office
Wait
Carriage Entrance
Inmates Own Clothes Store
Committee Room
General Store
Porter
Post-Mortem R.
Dead House
Engineers House
Yard
Baths
Nurses Rooms
Steward's
Coal Cellar

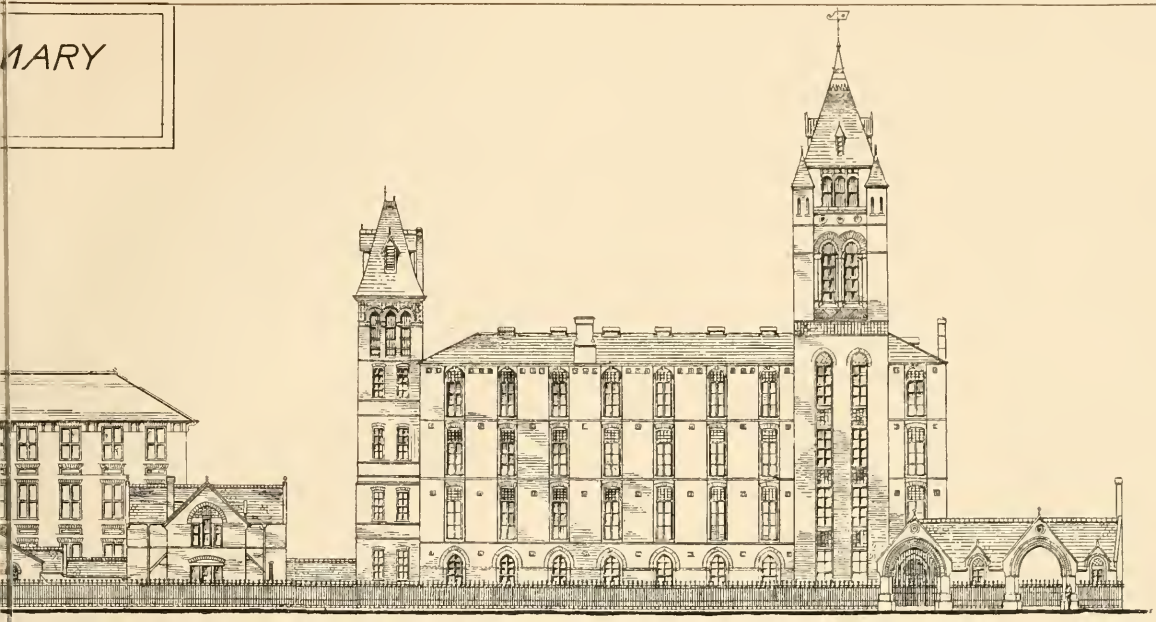
Fulham Road

Scale of Feet 10 5 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

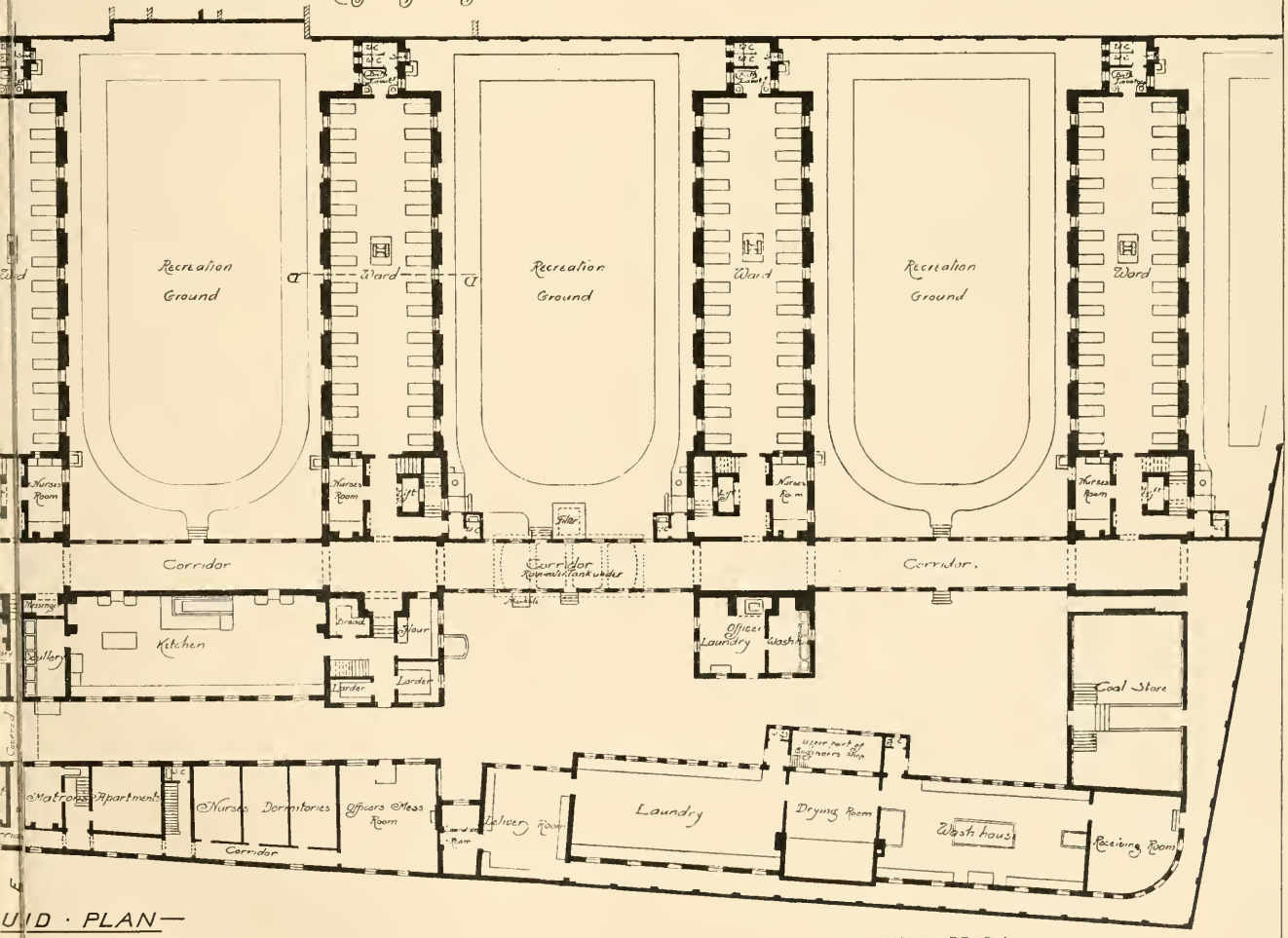
— GROUND

Kell, lith., Castle St. Holborn E.C

MARY



Elevation to Fulham Rd of Infirmary & Workhouse

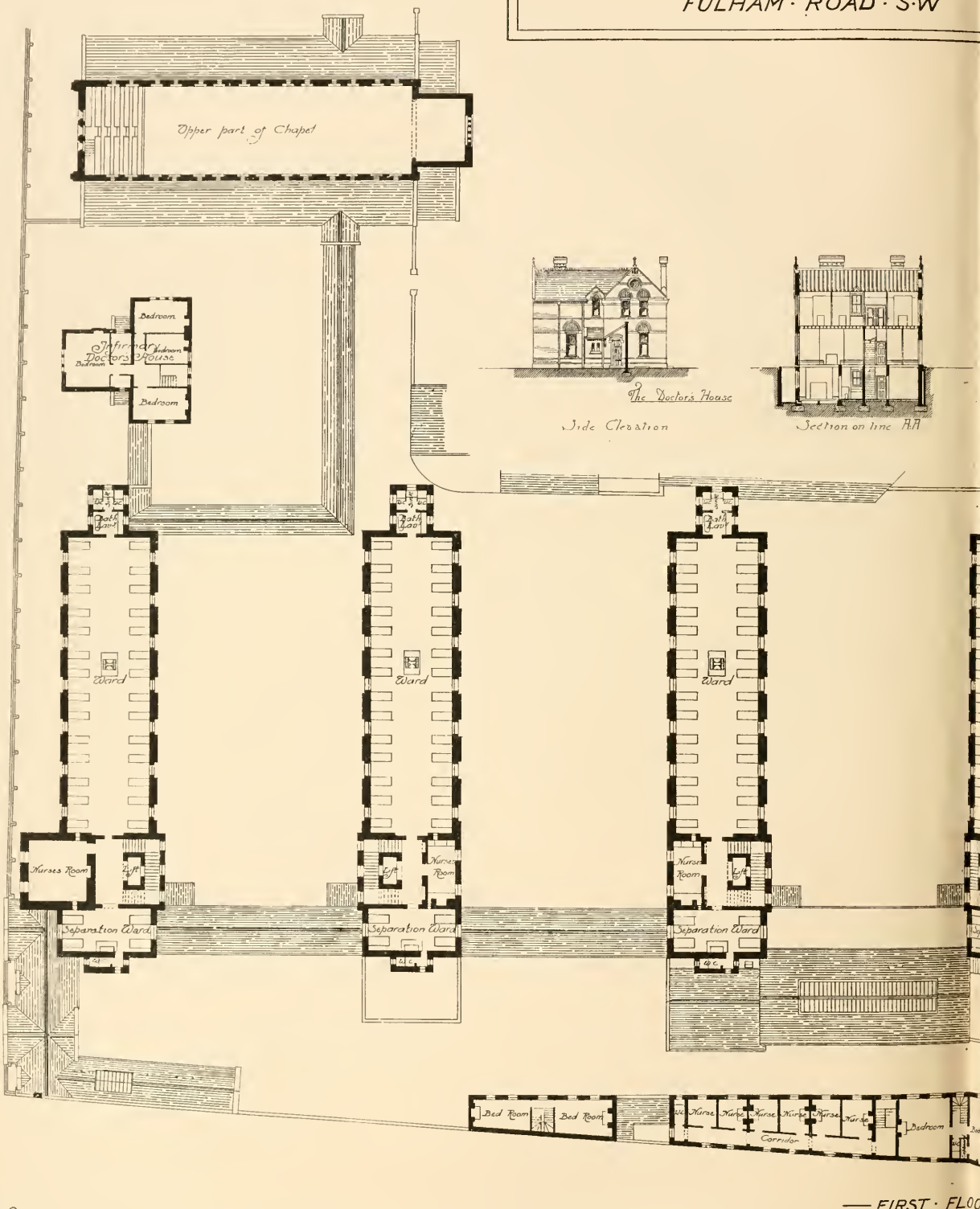


UID · PLAN—

H SAXON SNELL FRIBA
Architect

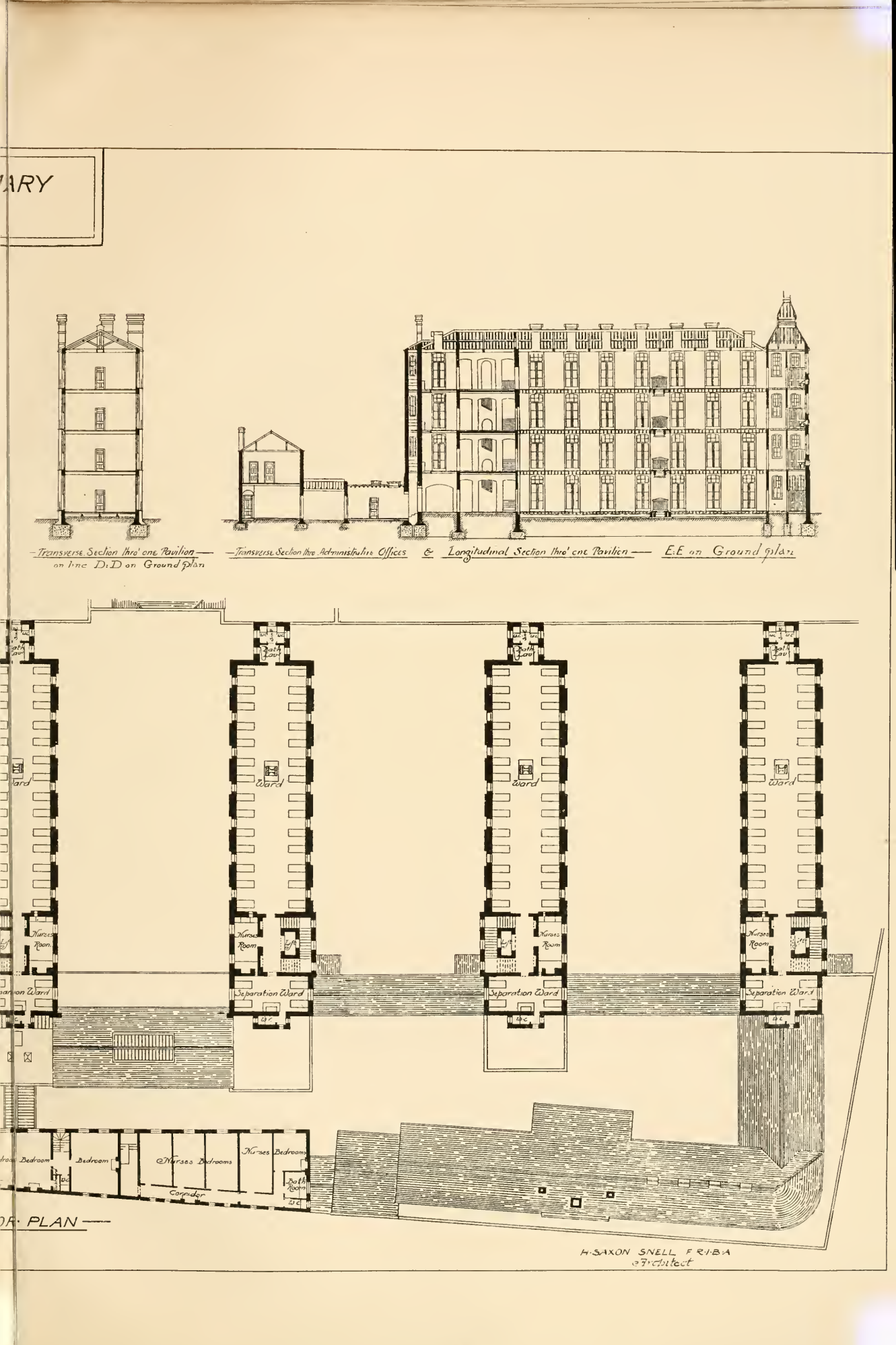
St. GEORGE'S · UNION · INFIRMARY

FULHAM · ROAD · S.W



Scale of Feet 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

FIRST · FLOOR · PLAN


ARY
Transverse Section thro' one Pavilion — on line D:D on Ground plan
Transverse Section thro Administrative Offices & Longitudinal Section thro' one Pavilion — E:E on Ground plan
Ward
Nurses Room
Separation Ward
Bath Lav
Bedroom
Nurses Bedrooms
Corridor
Bath Room
OR. PLAN —
H. SAXON SNELL F.R.I.B.A.
Architect

Holborn Union Infirmary.

ARCHWAY ROAD — UPPER HOLLOWAY, LONDON, N.

THESE BUILDINGS, opened by The Right Hon. G. Sclater-Booth, M.P., the then President of the Local Government Board, are erected for the accommodation of 620 Sick Poor of Holborn, Finsbury, Clerkenwell, and six other smaller Parishes and Districts of London. The extent of the site is about two and three-quarters acres.

Previously to the erection of this building the Sick Poor of the Union had for a few years been located in the Infirm Wards, illustrated at page 4, and the Guardians were so satisfied with this arrangement that they insisted that their proposed New Infirmary Wards should be constructed upon a similar plan. The Local Government Board naturally objected to such an innovation in hospital construction. A long controversy ensued between these two authorities, and in the result it was decided, as a matter of compromise, to erect the building partly on the Pavilion, and partly on the Infirm Ward principle, the former portion being reserved for the more acute cases of sickness. It is rather difficult, without some little study, to understand from the plans what is the general arrangement of the building, owing to its standing on a hill, and from which it results that what is the Ground Storey at one end, becomes either Basement or First Floor at the other end. It is not, as a general rule, desirable that the Kitchen Offices should be located as they are here beneath the Sick Wards, but the peculiar conformation of the ground just referred to rendered it, in the opinion of the Guardians, advisable, partly on the score of expense, and partly with a view to avoid placing any portion of the Sick Wards below the ground level, that such an arrangement should be adopted in this instance.

The buildings generally contain the following accommodation, viz. :—

Area in ft.

Ordinary Sick Wards.—
Central Block:

6 Wards, forming combined Dormitories and Day Rooms, each for 50 Beds, and each... 4,525
2 ,, ,, ,, each 4,000
8 Nurses' Duty Rooms ... ,, 217
8 Linen Rooms ... ... ,, 42
8 Bath and Lavatory Rooms ,, 75

Each Ward has 3 w.c.'s and 1 sink.

Each Block is provided with a direct-acting Hydraulic Lift, and in the basement there are Furnace Rooms containing Boilers for heating purposes.

The Staircases surrounding the Lifts, as also the Corridors, are all of York stone, supported upon brick vaulting, so that these portions of the buildings are fire-proof.

Acute Sick Wards:

6 Wards each for 28 Beds, and each 2,016
1 ,, ,, 24 ,, ,, 1,758
7 Day Rooms, to be used when required as Separation Wards for 4 Beds each, and each 288
7 Nurses' Duty Rooms (wrongly marked on plans as "Sculleries,") each 188

Each Pavilion has on each floor 3 w.c.'s, 1 Sink, 2 Linen Closets, 2 Lavatories, and a moveable Bath.

Each Pavilion has on the Ground Floor a w.c. for the use of the Officers.

Area in ft.

Each Pavilion is provided with a direct-acting Hydraulic Lift, and in the basement of Male Pavilion, and ground floor of Female Pavilion, there are Furnace Rooms, containing Boilers for heating purposes.

The Staircases surrounding the lifts, as also the Corridors, are all of York stone, supported upon brick vaulting, so that these portions of the buildings are fire-proof.

Administrative Offices:

Vestibule 45
Entrance and Waiting Hall ... 425
Porter's Office 30
2 Receiving Rooms for Males and Females ... ... each 218
One Bath Room and w.c. to each, and each 90
Committee Room 575
,, ,, Lavatory and w.c., &c. 66
Dispensary 340
Medical Officer's Consulting Room (wrongly marked on plan as "Office") 105
Matron's Office (wrongly marked on Plan as "Waiting Room") ... 105
Steward's Office 371
Medical Officer's Drawing Room... 340
,, ,, Dining ,, ... 340
,, ,, Study 133
,, ,, Kitchen 246
,, ,, Scullery 96
,, ,, Larder 46

Area in ft.

Medical Officer's Coal, Wine, and Beer Cellars ... 68
,, ,, Bed Room ... 280
,, ,, ,, ... 223
,, ,, ,, ... 213
,, ,, ,, ... 122
,, ,, ,, ... 63
,, ,, Bath Room ... 59
,, ,, w.c., Linen Closets, &c.
Matron's Sitting Room 228
,, Bed Room 171
,, Kitchen 123
,, Bath Room 58
,, w.c., &c., &c.
Steward's Sitting Room 244
,, Bed Room 152
,, w.c., &c., &c.
Assistant Matron's Sitting Room ... 217
,, ,, Bed Room ... 142
,, ,, w.c., &c., &c.
Dispenser's Sitting Room 220
,, w.c., &c., &c.
Porter's Sitting and Bed Room ... 230
Engineer's Parlour 224
,, Living Room 224
,, Scullery 60
2 ,, Bed Rooms ... each 224
Linen Closet, Pantry, Coal Cellar, w.c., &c., &c.
1 Nurse's Dormitory 479
10 ,, Rooms each (average) 145
2 ,, ,, ,, ,, 212
1 ,, ,, ... 151
1 ,, ,, ... 130
1 ,, ,, ... 78
1 ,, Bath Room 55
2 w.c.'s and 1 Slop Sink.

	Area in ft.
10 Nurses' Rooms ... ... each	154
w.c., Linen Cupboard, &c.	
The last-named Rooms are situated in a detached building standing upon adjoining ground, and not shewn upon plans here illustrated.	
General Kitchen	1,736
,, Scullery	663
Buttery, Larders, and General Stores, partly built on adjoining ground, and not all shown upon plans here illustrated	3,922
Additional Store Room in Roofs and Tower	845
General Coal Store	962
Officers' Day Room	673
Officers' Mess Room	673
,, Scullery	326
w.c.'s, &c., for Officers.	
LAUNDRY, &c.:	
Receiving Room	348
Wash-house	1,068
Drying Room and Horses	504
Ironing and Folding Room ...	1,068
Delivery Room and Clean Linen Store	348
Officers' Wash-house	336
Infectious Wash-house	242
Disinfecting Closet	87
Laundress' Living Room	207
,, Bed Room	126
Boiler and Furnace Room	628
Engine Room	218
Furnace Coal Cellar	94
Dead-house	500
Post-mortem Room	268
Paupers' Own Clothing Store ...	293
Stables	199
Harness Room	67
Carriage and Ambulance Shed ...	297
Coachman's Living Room	163
,, Bed Room	130
,, Scullery	92
,, Larder, w.c., &c., &c.	
Hay Loft	159
Two Workshops	523

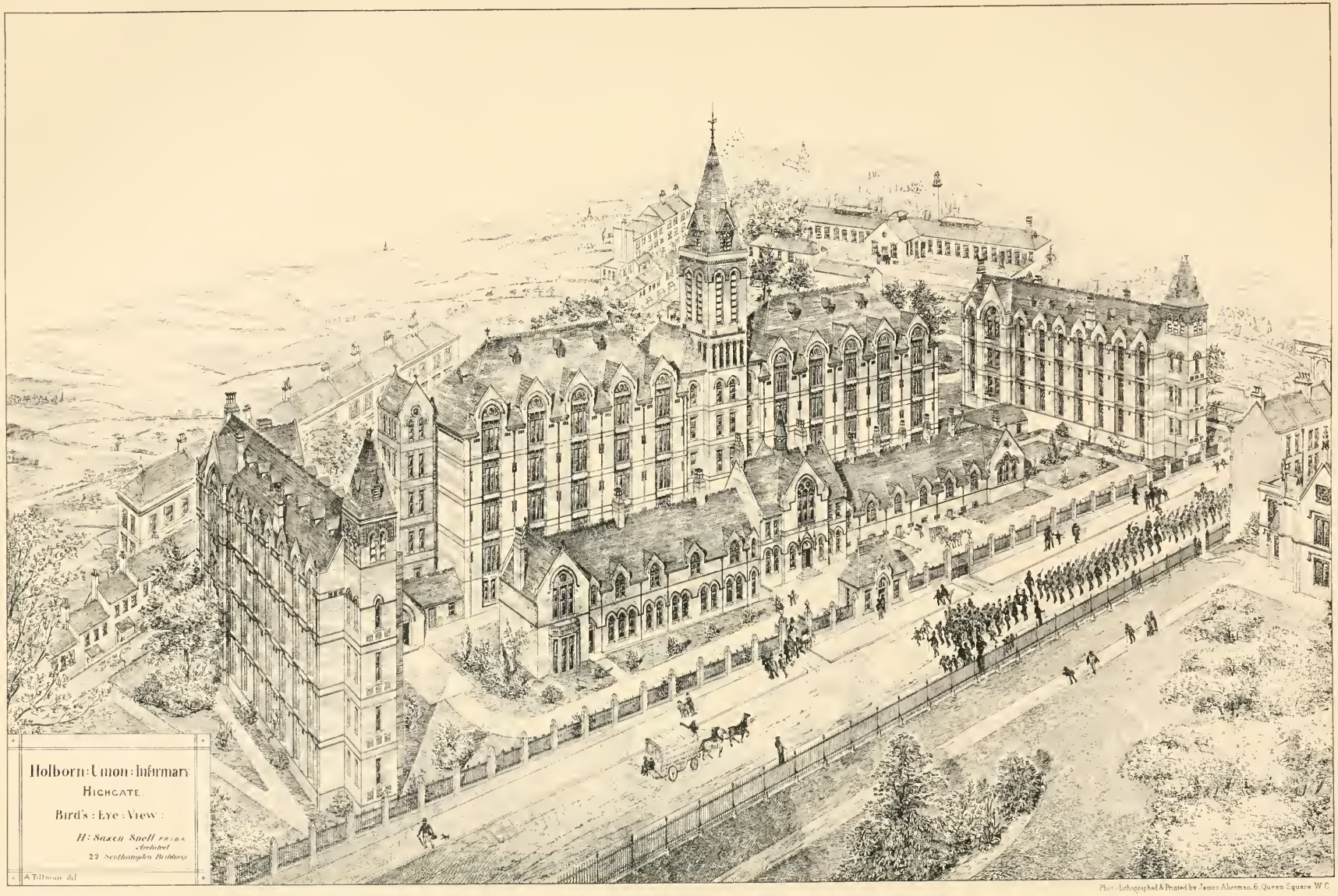
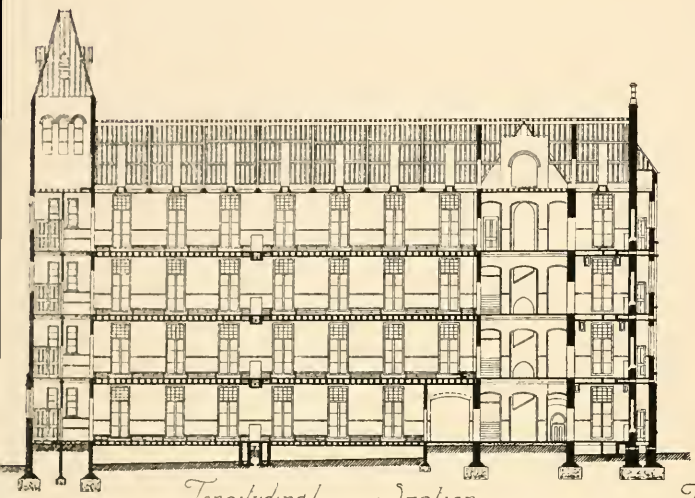
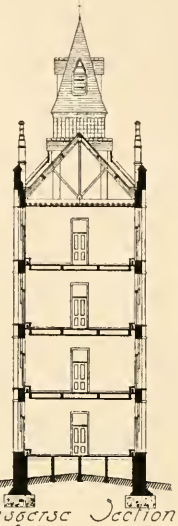


Photo-Lithographed & Printed by James Akerman, 6 Queen Square W.C.

Holborn Union Infirmary Hig



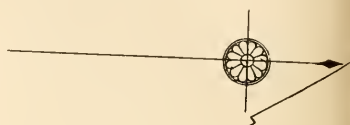
Longitudinal Section



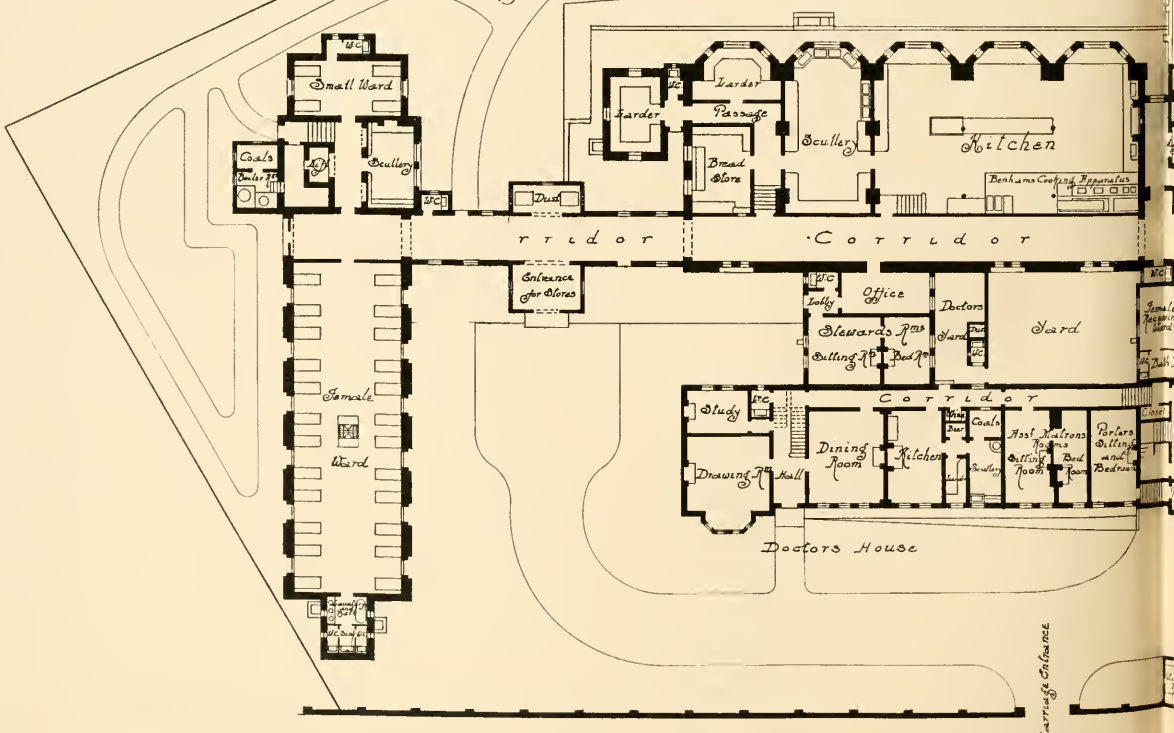
Transverse Section

Sections thro' Female Pavilions

Note. The ground falls from Nor
and therefore what is Base
end is Ground-floor at the



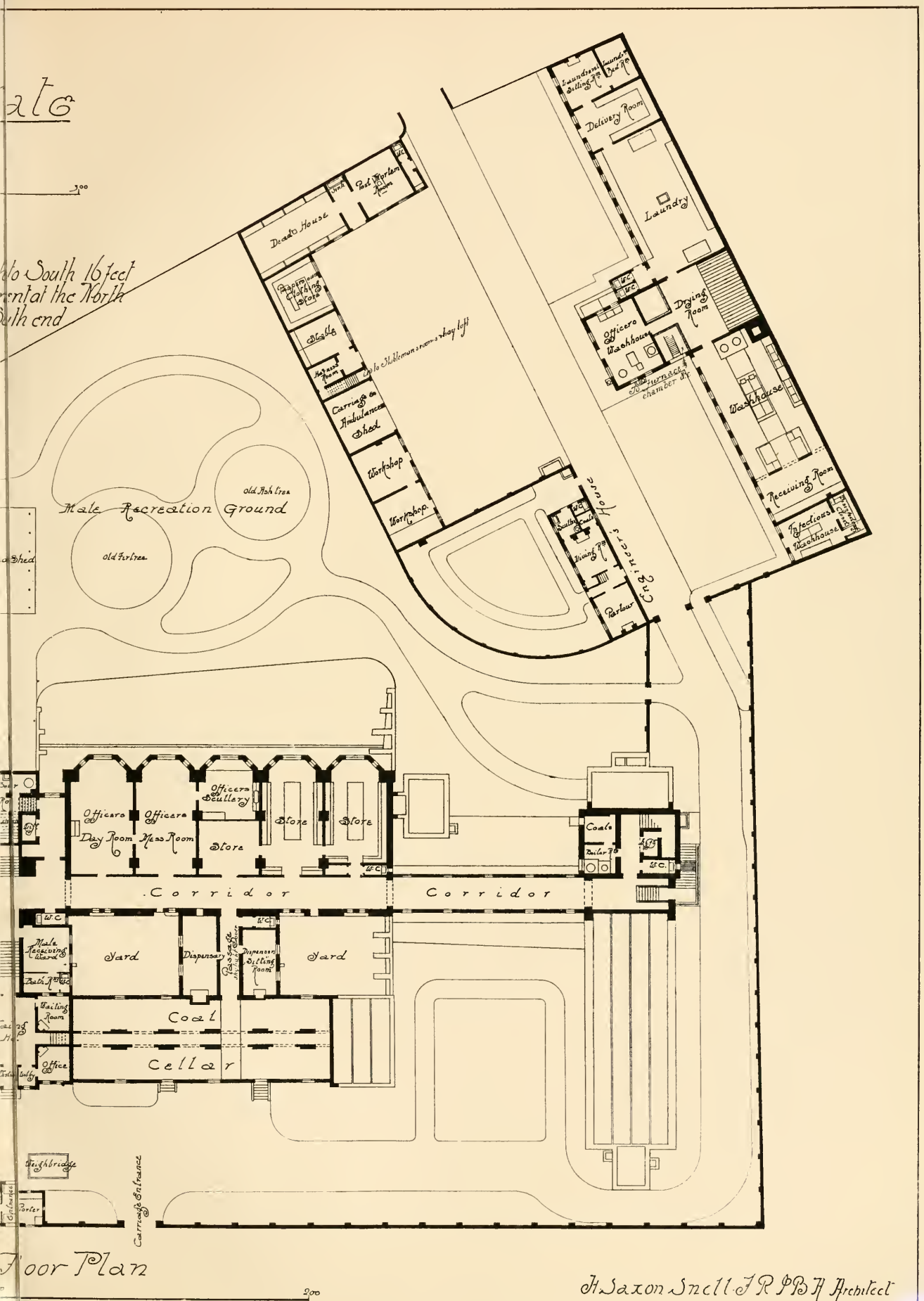
Female Recreation Ground



Ground

SCALE OF FEET 10 5 0 10 20 30 40 50 60 70 80 90

Photo-Lith'd by J. F. Hall, Gate.

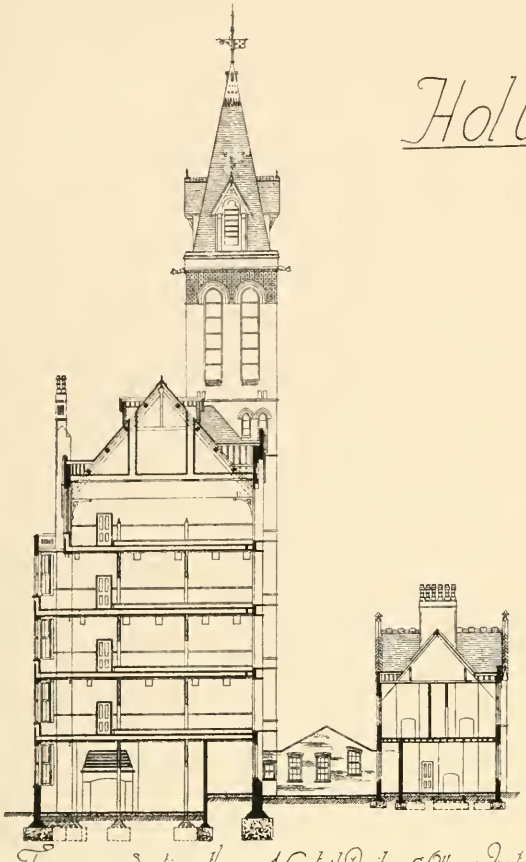


Floor Plan

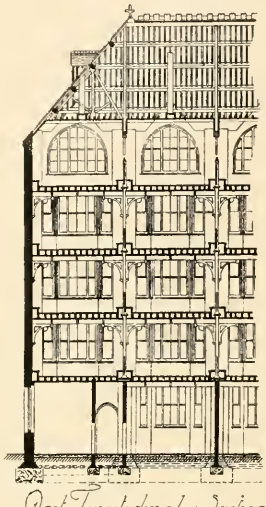
H. Saxon Snell. F.R.I.B.A. Architect

Holborn Union Infirmary

Note — The ground falls from North
and therefore what is Ground-f
North end is first-floor at the
end

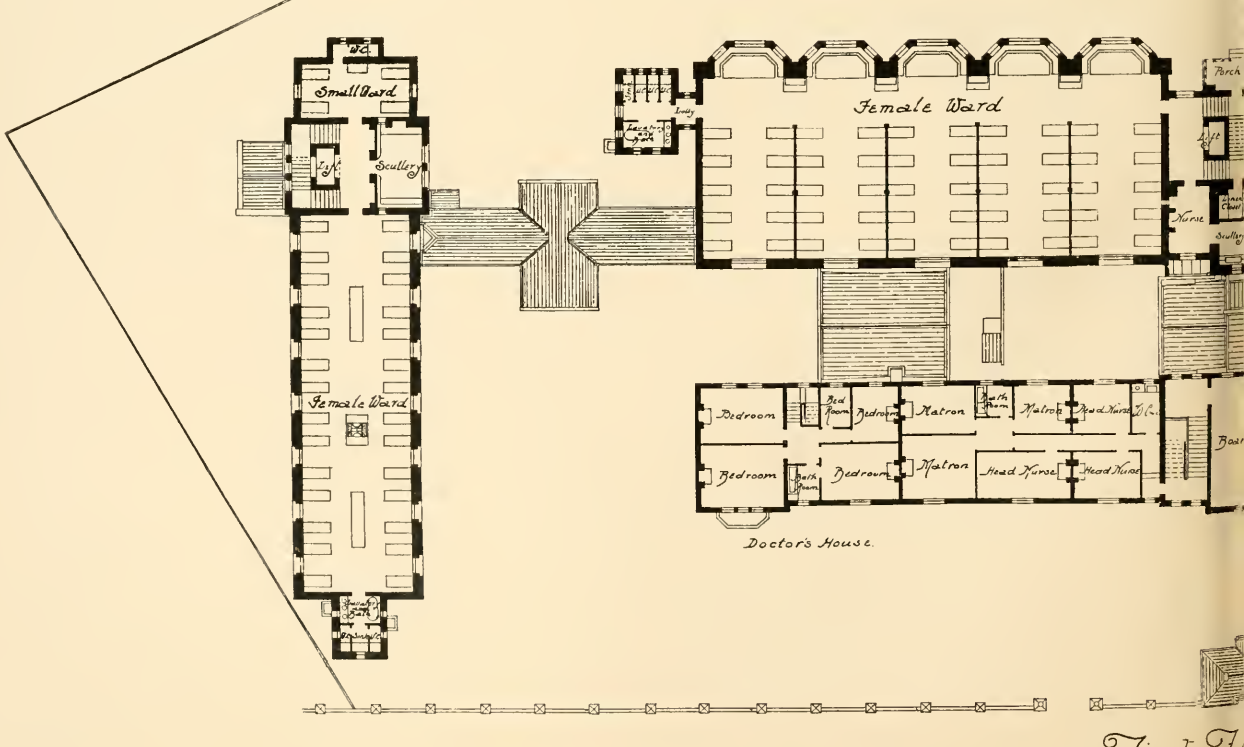


Transverse Section thro one of Central Pavilions & Officers Quarters



Part Longitudinal Section

Sections thro Central Block & Officers Quarters



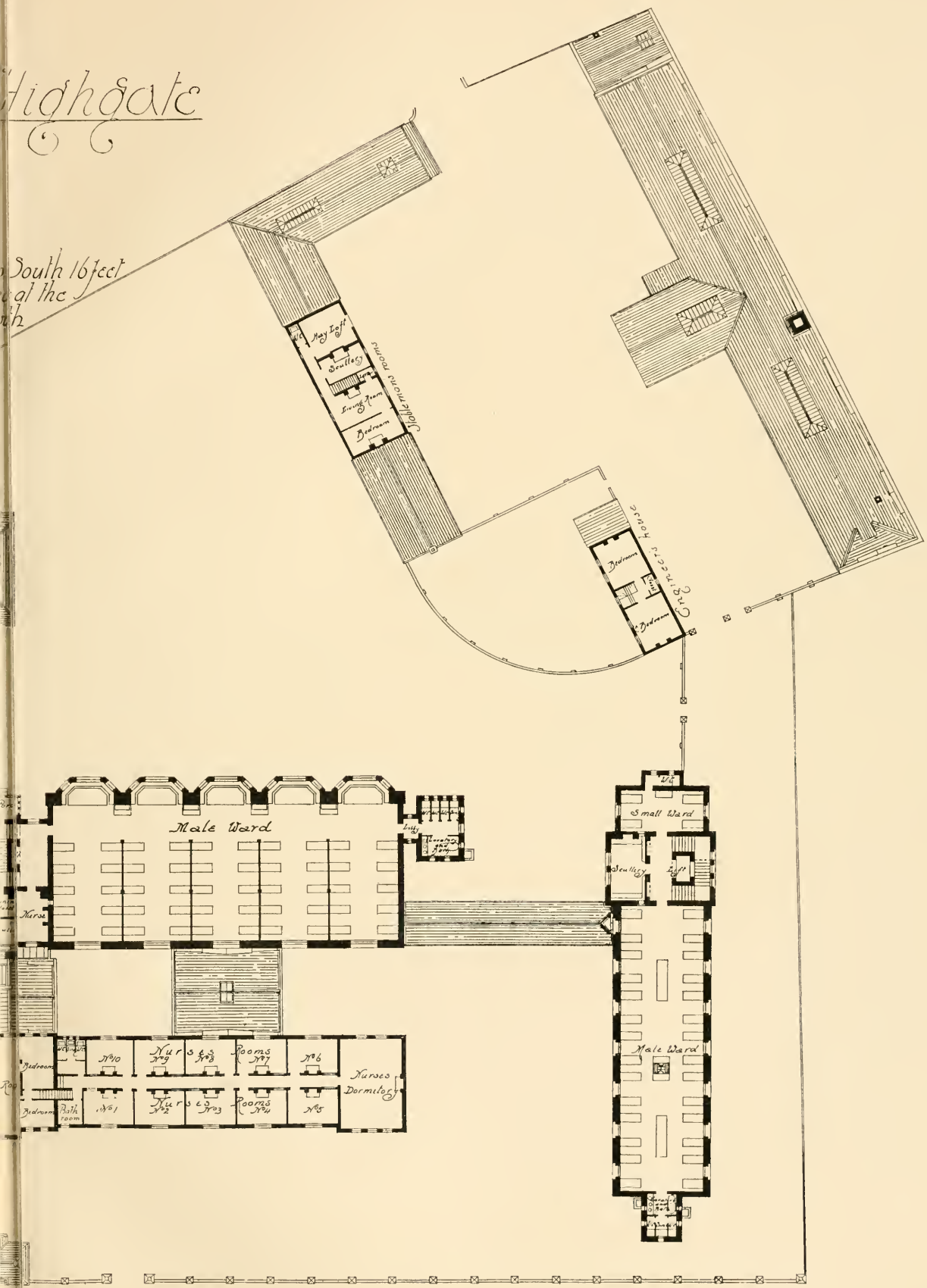
First F

SCALE OF FEET 10 5 0 10 20 30 40 50 60 70 80 90

C F Kell Photo Lith &C

Highgate

South 16 feet
at the
th



Plan

200

H Saxon Snell FRIBA
Architect

born, London E.C

St. Marylebone Infirmary.

Ladbroke Grove Road, Notting Hill, London, W.

His Royal Highness The Prince of Wales has graciously intimated his intention of opening this building during the course of the present month. The foundation stone was laid July 7th 1879 by Edmund Boulnois, Esq., M.A., J.P., Chairman of the St. Marylebone Board of Guardians. Accommodation is provided in the establishment for 744 Sick Poor of the Parish of St. Marylebone, and is, undoubtedly, the most complete establishment of its kind.

The area of the site is nearly three and a-quarter acres, and the fall of the ground, like that of the Holborn Union Infirmary, being very rapid from East to West, it results that what is ground floor at one end becomes the first floor at the other; and, unless this is borne in mind, it may be somewhat difficult to understand the plans.

It is very much to be regretted that the windows of the Wards were not on the combined lifting sash and casement principle (*see* page 19). Each large Ward is heated by two double thermhydric open fire grates (*see* page 21), and these are found sufficient without the additional aid of hot-water pipes heated from a separate furnace. The w.c.'s, Bath Rooms, &c., at the ends of the Wards are constructed in accordance with the detailed drawings illustrated (*see* page 17).

The Water for this Establishment is supplied by an Artesian Well, and the upper part of the Tower contains Cisterns for the storage of from two to three days' supply. This Tower also forms the chimney shaft for conveying away the smoke from the furnaces of the steam boilers, cooking apparatus, &c.

It will be observed that the Wash-house and Laundry are situated in the upper floors of the buildings at the rear of the Administrative Offices, a very desirable arrangement where, as in this instance, the area of the ground is insufficient and its shape such as to prevent the placing of these Offices on the ground floor and at a proper distance from the windows of the Sick Wards.

The building generally contains the following accommodation, viz. :—

Pavilions Generally.

	Area in ft.
24 Wards, each for 28 beds, and each	2,016
30 Separation Wards, each for 2 beds, and each average	200
6 Day Rooms	520
4 ,, ,, ...	514
4 ,, ,, ...	202
24 Nurses' Duty Rooms, each ...	203
24 Bath Rooms	58

In Closets on the lower floors of each double Pavilion adjoining the Lifts there are moveable Baths on wheels for use when required at the bedsides of patients.

Each double Pavilion has on each floor five w.c.'s, Sinks, and four Linen Closets.

Each double Pavilion is provided with a direct-acting Hydraulic Lift; and, in the Basements, there are Furnace Rooms containing Boilers for heating purposes.

The Staircases surrounding the Pavilion Lifts, as also the Corridors, are all of York stone supported upon brick vaulting, so that these portions of the Buildings are fire-proof.

Administrative Offices.

	Area in ft.
Vestibule	250
Entrance Hall and Waiting Room	1,080
Porter's Office	270
Two Receiving Wards for Males and Females, each	347
One Bath Room and w.c. to each, and each	165
Chapel (over entrance gateway) to seat about 230	1,800
Vestry (with w.c., Lavatory, &c.)...	240
Committee Room	775
,, ,, w.c., Lavatory, &c.	
Dispensary	617
Matron's Office	195
Steward's Office	178
Medical Officer's Drawing Room ...	395
,, ,, Dining Room ...	348
,, ,, Breakfast Room..	348
,, ,, Study	207
,, ,, Kitchen	270
,, ,, Scullery	113
,, ,, Larder, Coal, and Wine Cellars...	161
,, ,, Bed Room ...	282
,, ,, ,, ...	230
,, ,, ,, ...	196
,, ,, ,, ...	143
,, ,, ,, ...	109
,, ,, Bath Room ...	91
,, ,, w.c.'s, China Closet, &c.	
Assistant Medical Officer's Sitting Room	250
Assistant Medical Officer's Bed Room	213
Assistant Medical Officer's Kitchen	95
,, ,, Bath Room, w.c. and Sink ...	90
Matron's Sitting Room	270
,, Bed Room	218
,, ,, ,, ...	99
,, Kitchen	123
Bath Room, w.c., and Sink	90
,, Larder, Coals Store, Cupboard, &c.	
Dispenser's Sitting Room	152
Additional Officers' Sitting Room ..	246
,, ,, Bed Room ...	240
Engineer's Living Room	235
,, Kitchen	170
,, Scullery	55
,, Pantry, Coals, w.c., &c.	
,, Bed Room	232
,, ,, ,, ...	152
,, ,, ,, ...	80
,, ,, ,, ...	54
29 Nurses' Rooms, each (average) ..	100
4 ,, ,, ,, ...	120
10 ,, ,, ,, ...	133
,, ,, ,, ...	150
2 ,, Bath Rooms, w.c.'s and Sinks	77
General Kitchen	1,840
Scullery	330
Bakery	240
Servants' Hall	425
Officers' Recreation Room... ...	621
,, Mess	613
,, Reading	425
,, Cloak Room, Lavatory, w.c.'s	137
,, Scullery	105
Store Rooms, Larders, &c. ...	4,103
Inmates' Clothing Store	544
General Coal Cellar with two Lifts for raising Coals to Ground Floor	4,347
Laundry, &c. —	
Receiving Room	402
Wash house	1,625
Officers' Wash house	492
Drying Room with Horses... ...	475
Covered Drying Ground	2,055
Ironing and Folding Room ...	1,580
Clean Linen Store & Delivery Room	432
2 Lifts and Shoots for Raising and Lowering Clothes.	
Laundresses' Living Room ...	180
,, Bed Room	110
Engineers' Shop and Boiler Room	1,570
Workshop	426
Engine Room	287
Artesian Well and Pump Room ...	280
Furnace Coal Cellar	470
Disinfecting Closet and Ante Room to ditto	426
w.c.'s, Dust hole, &c., &c.	
Dead-house	291
Post-mortem Room	217
Gardeners' Tool Shed	35

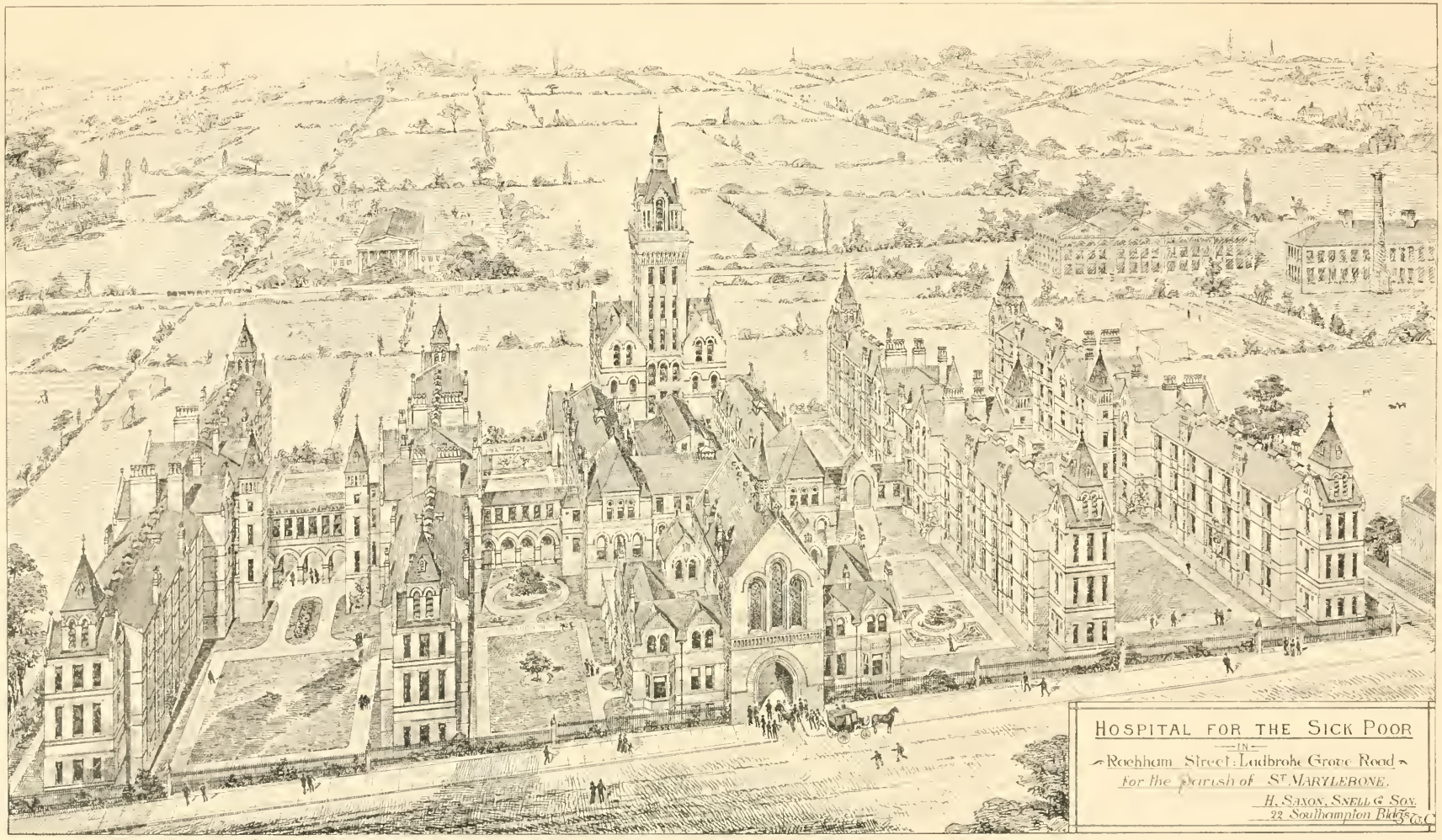

HOSPITAL FOR THE SICK POOR
IN
Rochham Street: Ladbroke Grove Road
for the Parish of St MARYLEBONE.
H. SAXON, SNELL & SON.
22 Southampton Bldgs. W.C.

Photo Lithographed & Printed by James Akerman 6 Queen Square W.C.

St Marylebo
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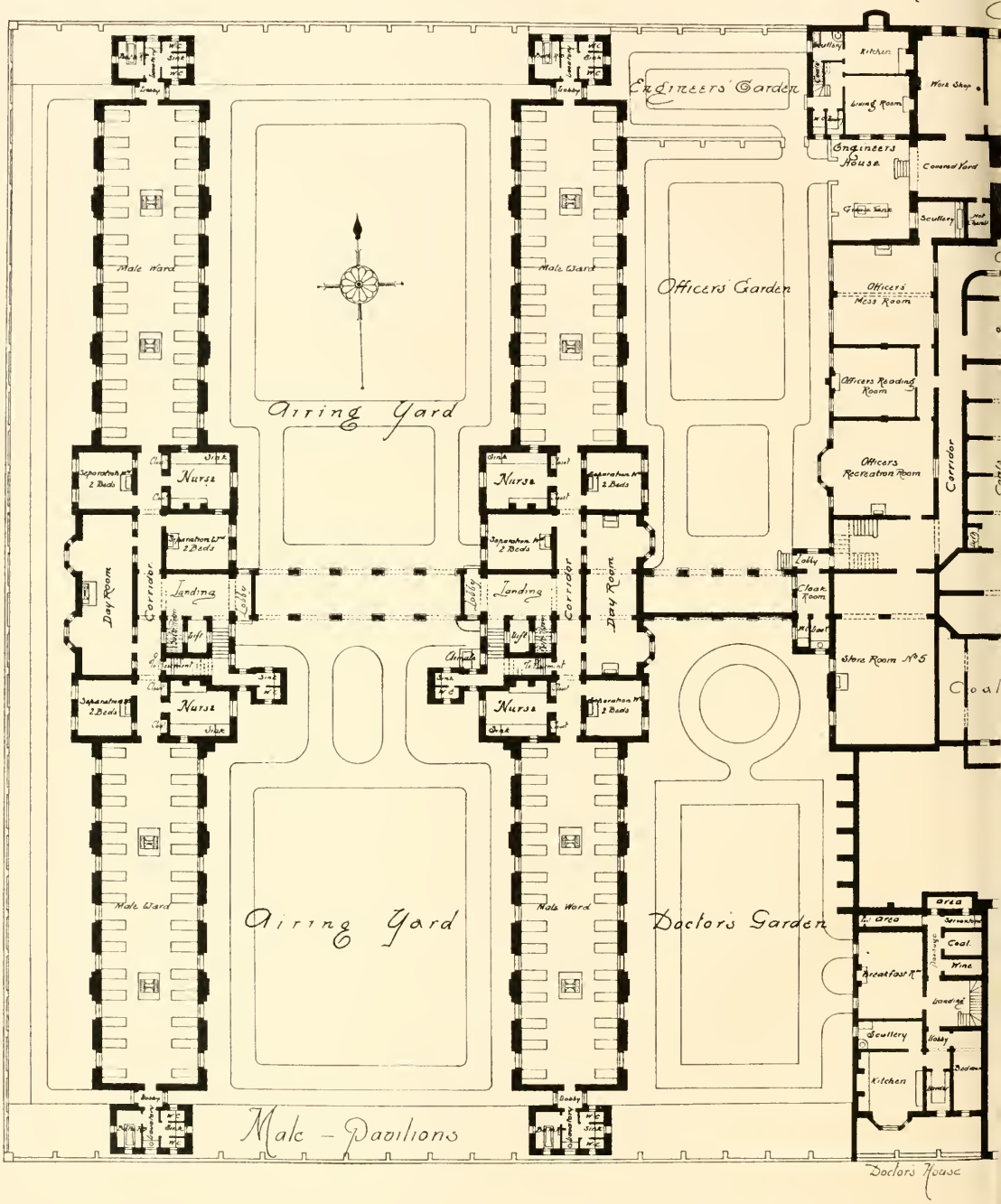
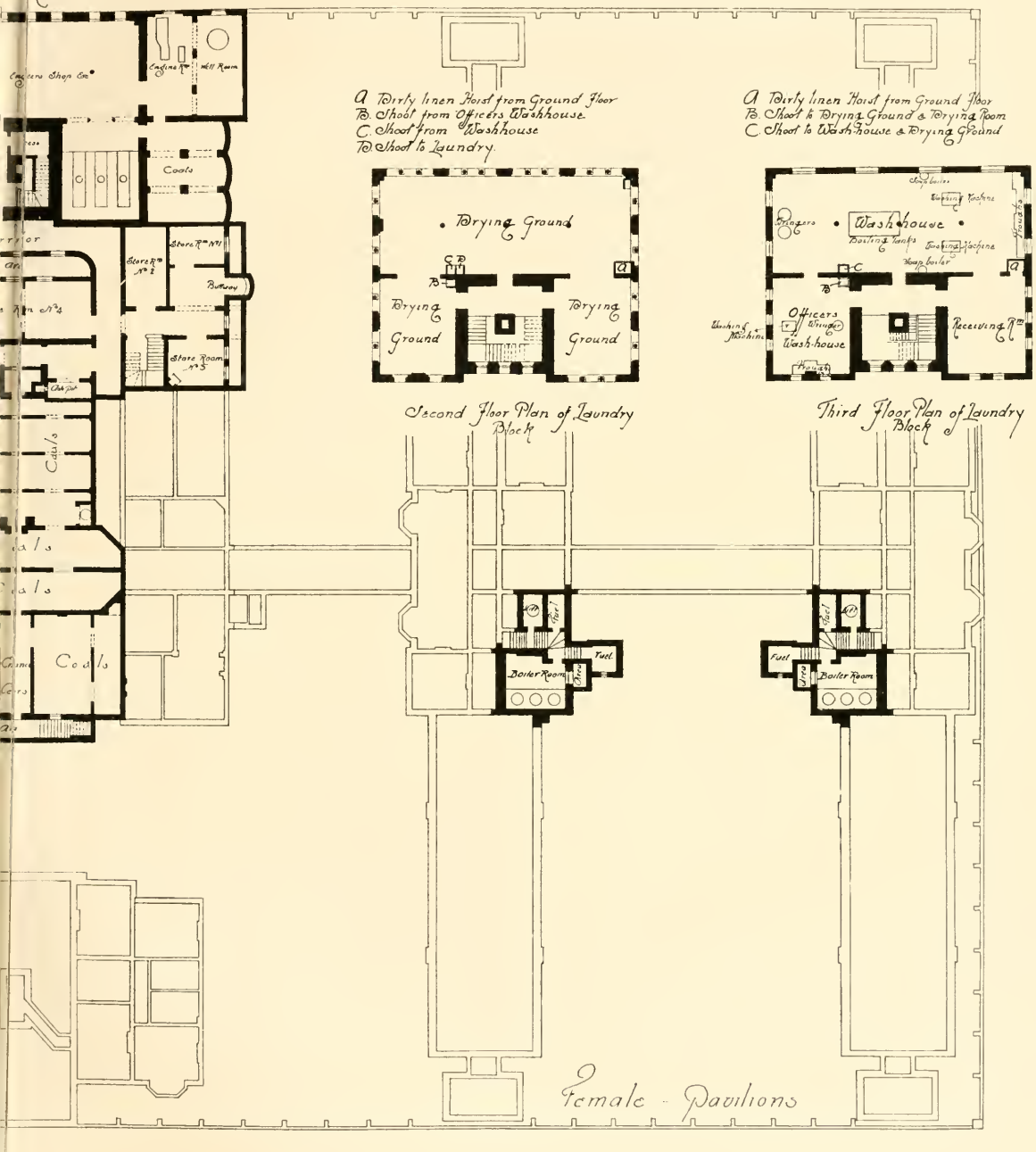


Plan at level A showing G
and Basement Floor

Scale 10 5 0 10 90 80 70 60 50 40 30 20

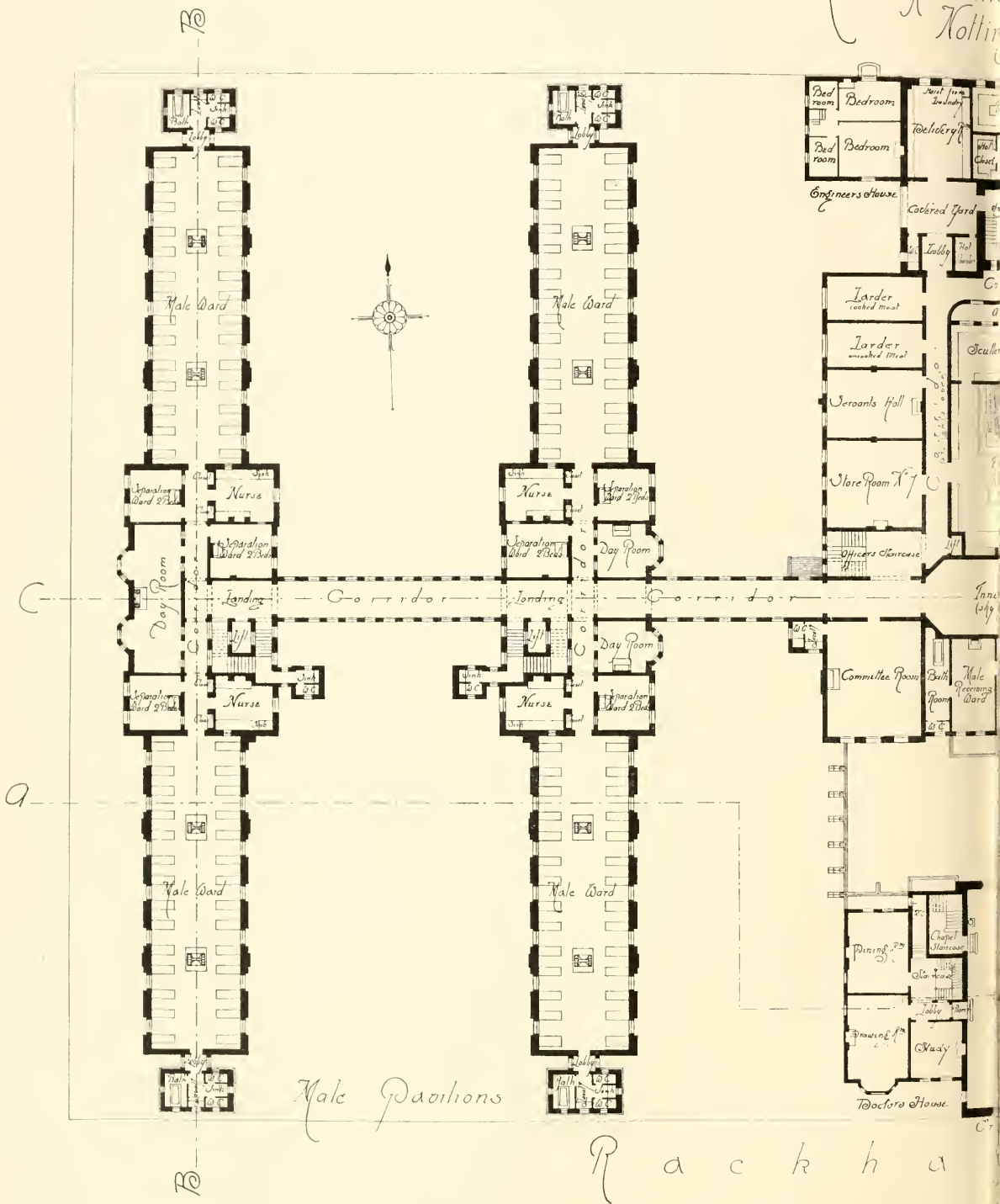
ns Infirmary
n Street
& Hill



nd Floor Plan of Male-Pavilions
& other Buildings

H. Saxon Snell & Son
22, Southampton Buildings
W.C

St Marylebone Rackham Notting



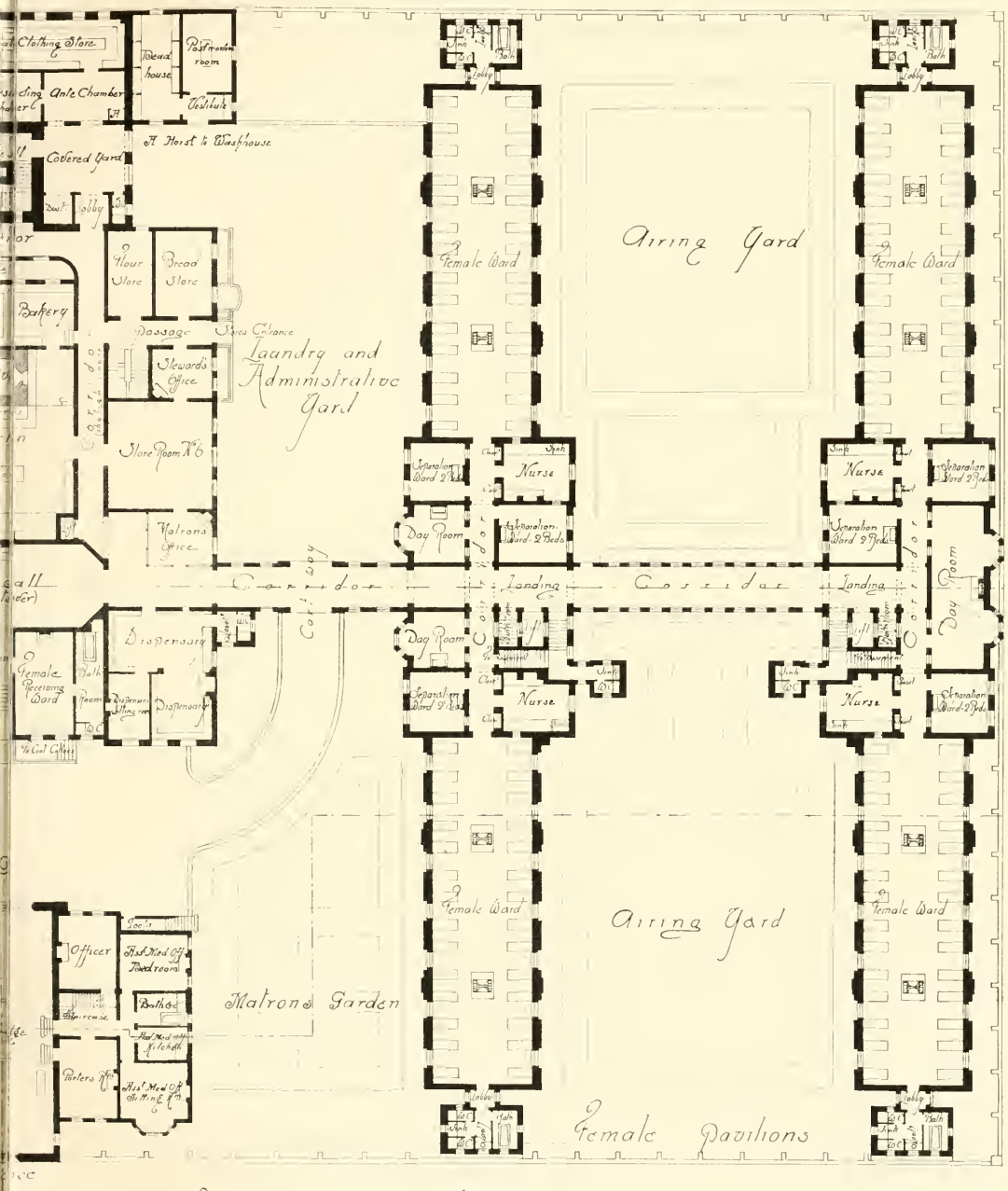
Rackham

Plan at level B showing
and Ground floor

Scale Thirtieth 10 20 30 40 50 60 70 80 90

Photo-Lithographed & Printed by James Akerman 6 Queen Square W.C.

…nc Infirmary
…n Street
…2 Hill



First floor plan of Male-pavilions & other Buildings

200 Feet

H. Saxon Snell & Son
22 Southampton Bldgs WC

St Marylebon
Rackha
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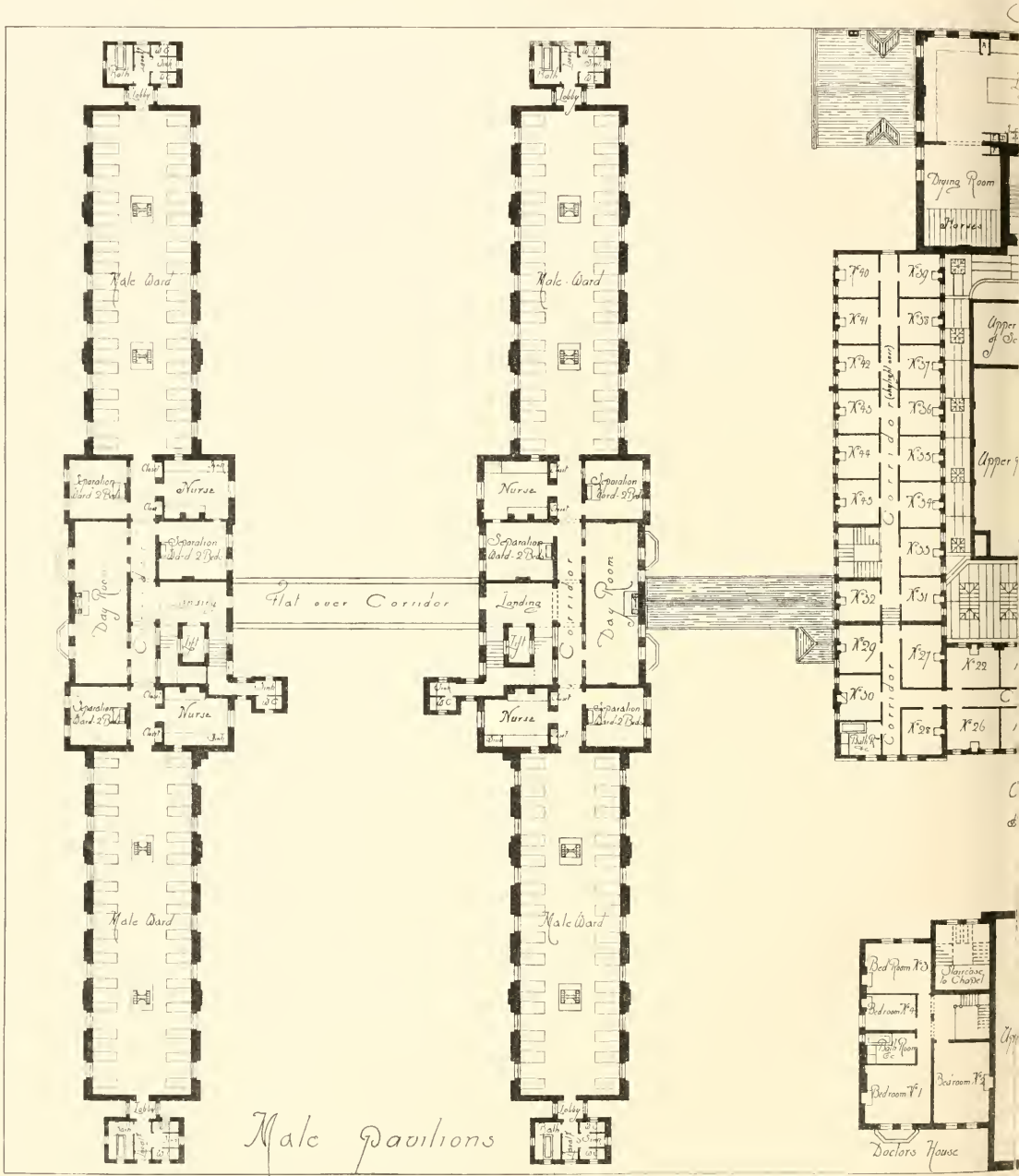

Male Pavilions

Plan at level C. showing First Floor P
Lower

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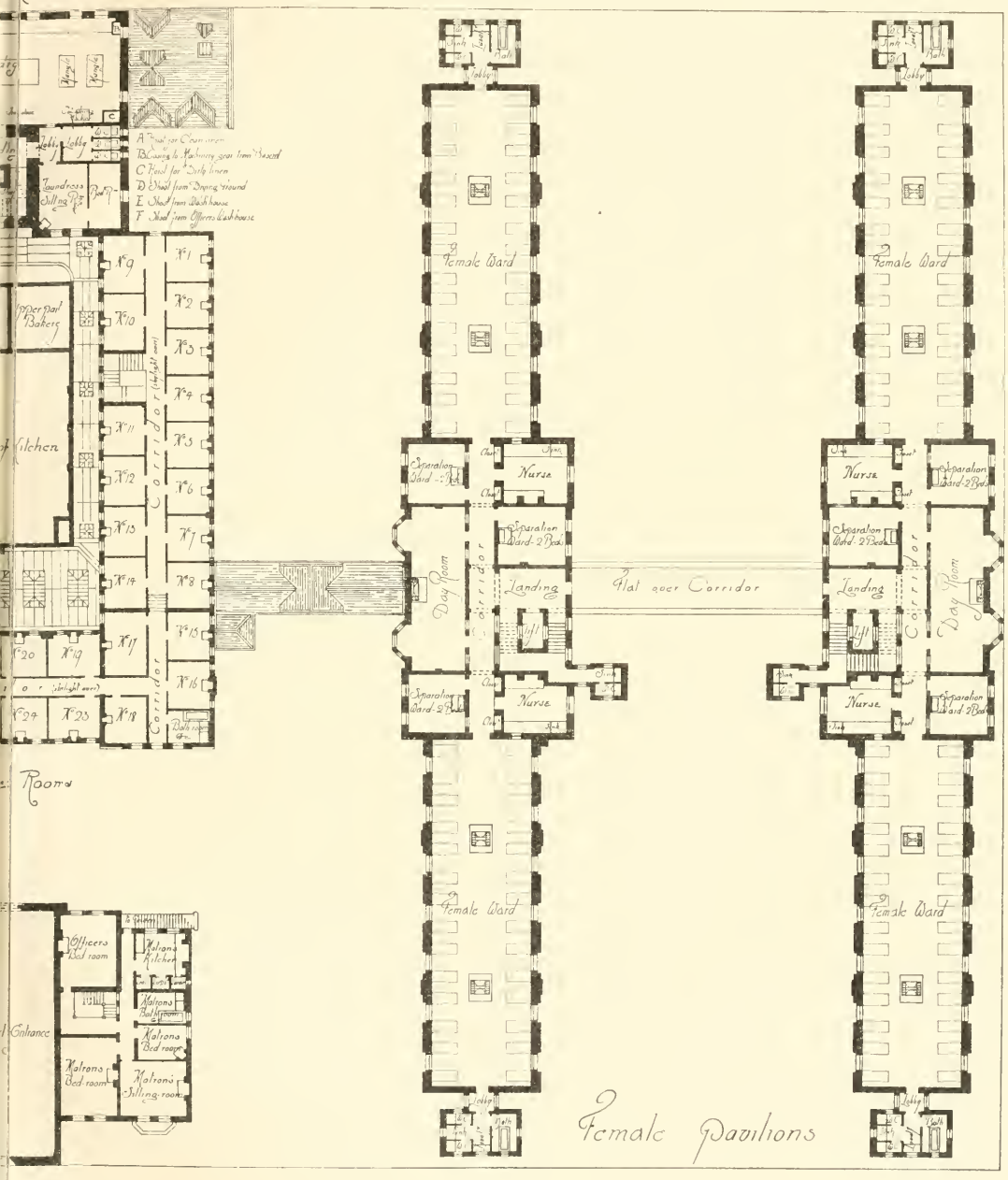
Infirmary

Street

Hill



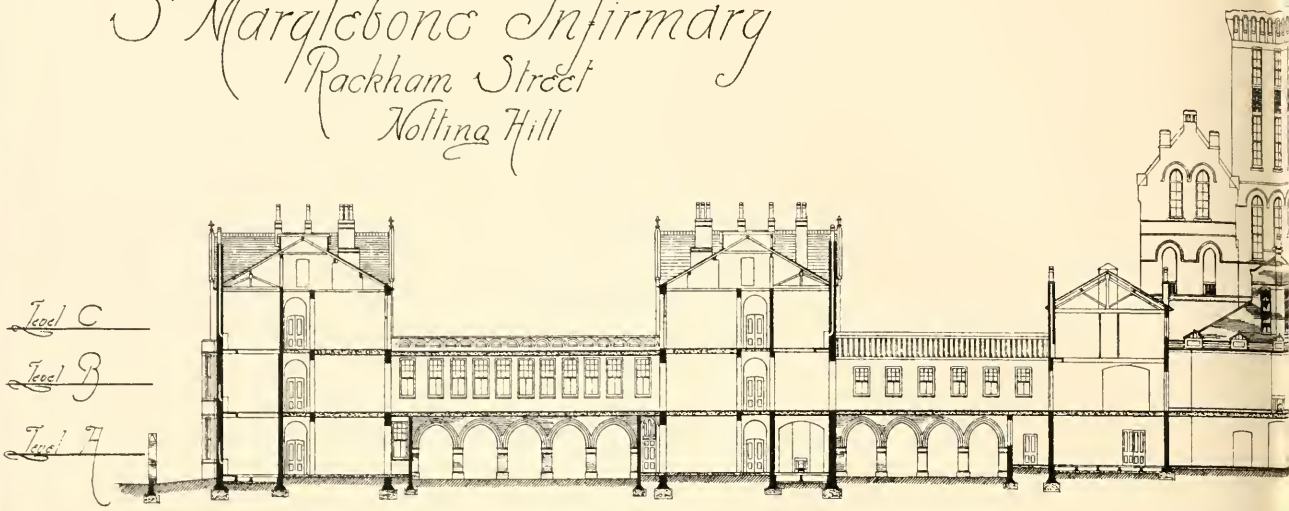
Upper Pavilions & Second Floor plan of

Pavilions

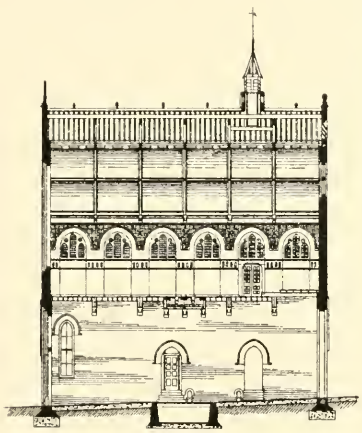
150 200 feet

H Saxon Snell & Son
22 Southampton Buildings

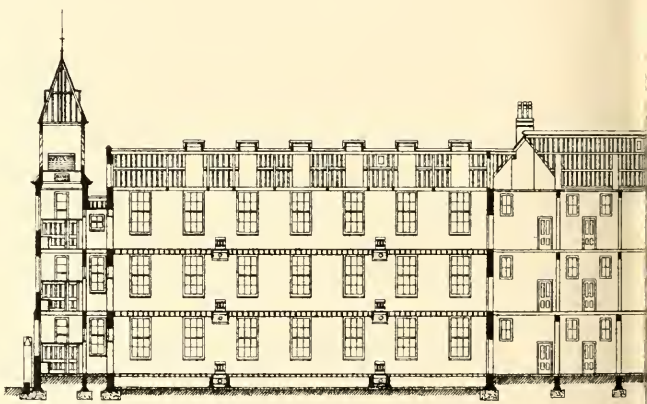
St Marylebone Infirmary
Rackham Street
Notting Hill



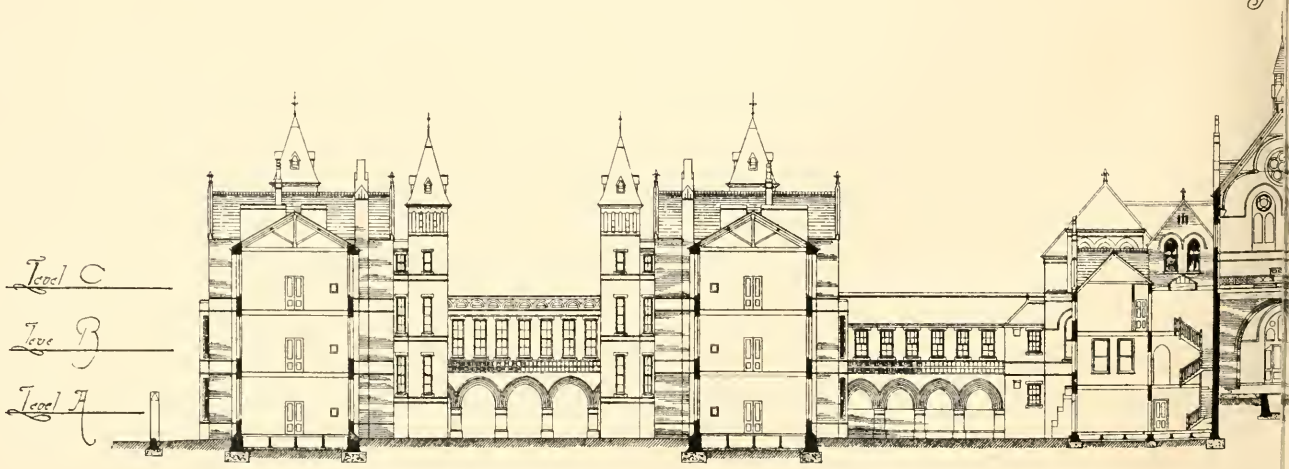
Section on
see Ground



Section on line C.C
see Ground Plan

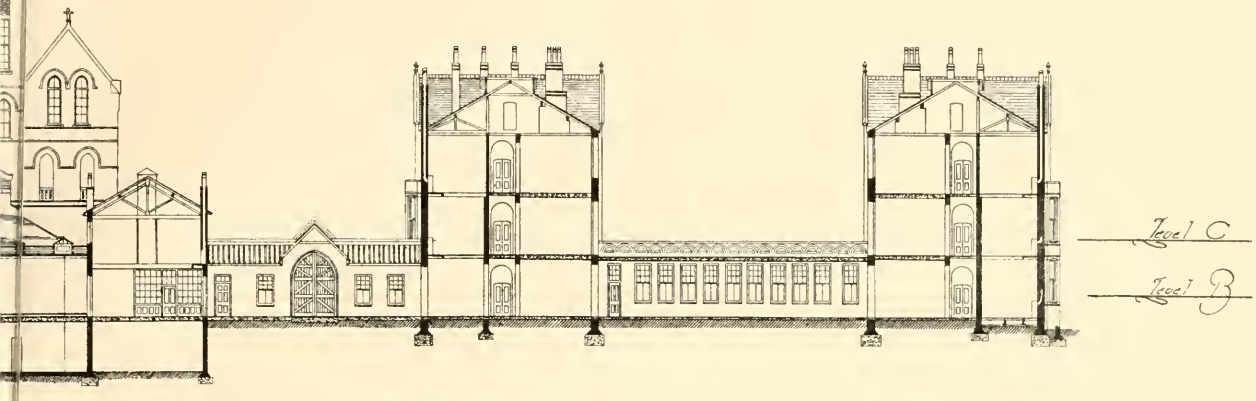


Section on
see Ground



Section on
see Ground

Scale Feet



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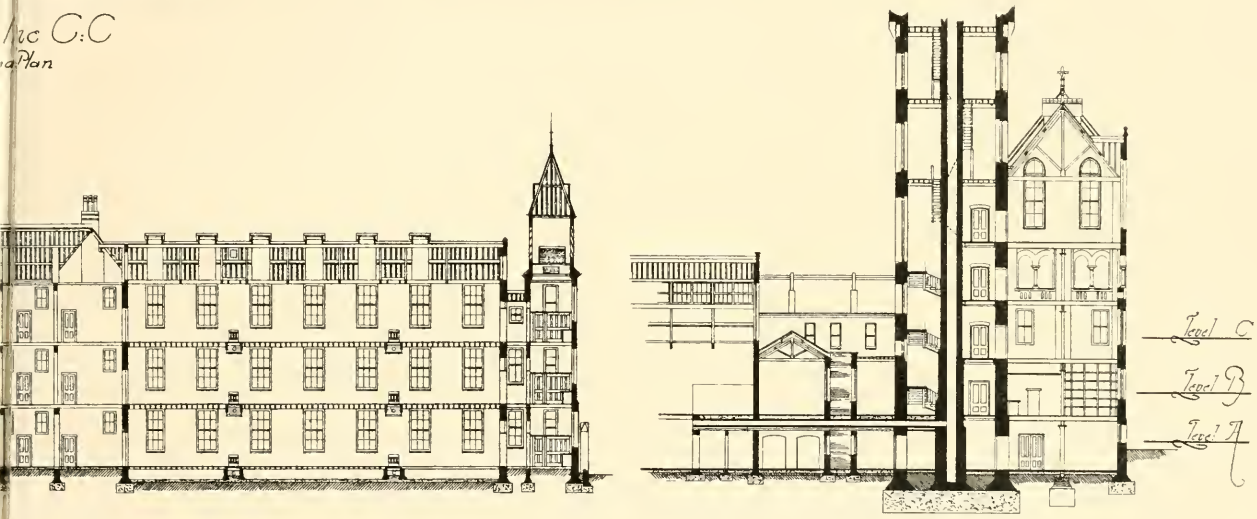
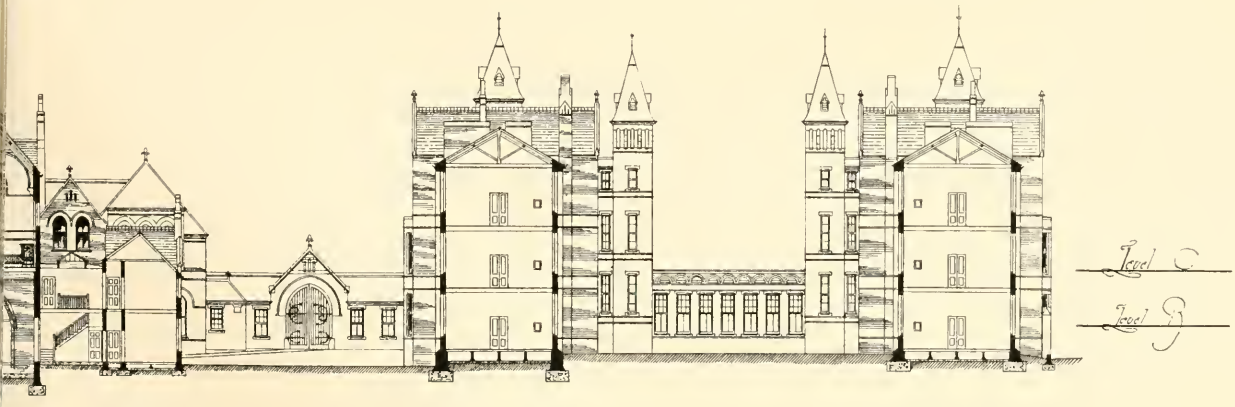
a Plan



ne B:B
Plan

Section on line D:D
see Ground Plan



ne A:A
Plan

H. Saxon Snell & Son
22 Southampton Buildings
W.C.

Design for an Infirmary with Circular Wards.

Professor Marshall, F.R.S., of the University College and Hospital, London, suggested some few years since the advisability of erecting Sick Wards, circular on plan, and, in a pamphlet published some short time afterwards, he states with great clearness and much force the advantages that would result from the adoption of this system. This pamphlet also contains some valuable criticisms upon Professor Marshall's designs by Mr. P. Gordon Smith, F.R.I.B.A., the Architect to the Local Government Board. There is no doubt that the plan, if carried out, would be found to afford many advantages not to be attained by the rectangular-shaped Wards, and the only argument that could be urged against its adoption is that it is, as pointed out by Mr. Smith, more expensive in first cost.

The following extracts from the pamphlet previously referred to will shew what advantages are claimed for the adoption of "Professor Marshall's System of Hospital Wards."

Professor Marshall says—

"(*a*) As regards *freedom of frontage* to all quarters of the compass, a circular ward would be uniformly free, except at some small part connecting it, by means of an open, or partially open, corridor with other circular wards, or with the necessary offices and administrative buildings.

"(*b*) As regards the access of *light* and *air*, a circular ward cannot be surpassed. It is strongly insisted on by Professor Jones (Billings' Reports), that 'an unlimited supply of air' to a ward 'is the *cardinal* consideration'; and, again, it is elsewhere stated (Oppert), that 'the worst wards are those where least air and light are provided,' and that 'a closed court with wards around is the worst arrangement.' A circular ward is obviously the inverse of this last-named plan; and, moreover, having no blank ends like an oblong ward, its uniformly rounded exterior, receding from all adjacent buildings, would receive light, air, and wind from every direction.

"(*c*) The amount of *wall space*, *floor space*, and *cubic space*, for each patient, in a ward of any shape, may of course be regulated by adapting the number of beds to the dimensions of any given ward; but it will be found that a circular ward, unless it be a small one, offers decided advantages in each of these respects. To illustrate this, I will take, as an example, a ward circular in shape, and having an internal diameter of 61 feet. Such a ward would give 191½ linear feet of internal wall surface, which would afford 8 feet of wall space for each of twenty-four beds, and 9½ feet for each of twenty beds. To obtain space for access to the ward, however, two beds must in either case be deducted, so that the accommodation would be reduced to twenty-two or to eighteen beds. Nevertheless, as regards available wall surface the circular ward has the advantage; for to accommodate twenty-two beds in a parallelogram 30 feet in width, giving to each bed a wall space of 8 feet, would require 236 feet run of wall; whilst for eighteen beds, with 9½ feet of wall space to each, 231 feet of wall would be required, instead of 191½ feet, as in the proposed circular ward. This is explained by there being no available places for beds at the ends of an oblong ward.

"The total *floor space* is a circular ward 61 feet in diameter is 2,922 square feet, and this of course exceeds the space capable of being enclosed by an equal run of boundary wall arranged in any other regular or irregular figure. It would yield, for twenty-two beds, about 133 square feet of floor space for each, and for eighteen beds, 162 superficial feet for each. The floor space per bed in any oblong pavilion ward, 30 feet wide, in which a wall space of 8 feet is allowed for each bed, is only 120 feet; so that the advantage of the circle is clearly obvious. A few years since, 84 superficial feet were regarded as an ample allowance for each bed; but according to Stephen Smith (Billings' Reports), 120 square feet are now demanded, and for certain special hospitals a still larger space is desirable. The circular ward system affords the most economical mode of securing such a space, so far as linear extent of wall is concerned.

"The amount of *cubical air space* for each patient necessarily follows the same rule, and would be relatively greater in the circular than in the oblong ward here supposed. Thus, the oblong ward, with 120 square feet to each bed, would give 1,800 cubic feet per patient, for a height of 15 feet; whilst the circular ward would afford, with the same height, either 1,995 cubic feet for each of twenty-two patients, or 2,443 cubic feet for each of eighteen patients. In special hospitals, any required amount of cubical air space could of course be obtained, either by an increase of height beyond 15 feet, or by diminishing the number of beds. In reference to the last point, it may be here observed that all authorities agree that the number of patients in a pavilion ward should never exceed thirty. Stephen Smith (Billings' Reports) would restrict the number to twenty. The alternative numbers proposed in the above-described circular ward are eighteen or twenty-two.

"(*d*) In reference to *ventilation*, I venture to suggest that a circular ward would offer highly favourable conditions for the complete attainment of this 'cardinal consideration.' In contact with the air on all sides, save for about one twentieth part of its circumference, where it would be united with its corridor or offices, and having its windows disposed at regular intervals around it, it would form a sort of fac-simile of the *circular tent*, so efficaciously sanitary, because so completely detached and aërated. Horizontal currents of air would sweep more readily and uniformly around the external surface of a circular than an oblong building. For the purpose of *natural ventilation*, every such horizontal movement of the outer air would become available, from whatsoever quarter or side it came. Proper openings systematically arranged in windows or walls, and acting as inlets or outlets as the case might be, would admit air or allow it to escape on every side, the fresh air being conducted beneath, above, or between the beds. For *artificial ventilation*, a shaft or shafts would find a suitable place in the centre of the ward, and therefore equidistant from the circumferential inlets; such shafts might be easily and conveniently made to work by some central heating apparatus, or by some central mechanical agency. The difficulties attendant upon ventilating a long ward would disappear. Sharp draughts across the ward, down draughts on the walls opposite and relatively near to open windows, deficiency of movement of the air with certain winds, and the unequal or opposing extracting power of two or more fire-places, would not exist.

"It may also here be mentioned that the large central area of a circular ward would serve to separate patients very widely from their opposite fellow sufferers. In an oblong ward, 30 feet wide, the distance from the foot of one bed to that of the bed opposite to it is 18 feet; in a circular ward 61 feet in diameter, it would be 48 feet. In the former case, the mean distance of the middle beds from the remainder is about 26 feet; in the latter the mean distance of any one bed from the rest is 32 feet. The quantity of air between the patients would of course be greater.

"(*e*) As to the equable *warming* of a circular ward, it is obvious that a central source or sources of radiating heat would present the advantage of being equally distant from every patient in bed; the warming centre would be in reality a *focus*: and, moreover, such a disposition of the heating apparatus would facilitate the central movement of the air for the purpose of artificial ventilation. But, probably, warm water pipes would have to be introduced around the circumference of the ward, a matter of as little difficulty as in an oblong ward.

"(*f*) The *isolation* of circular wards from each other, on the horizontal plane, would be accomplished readily by long and narrow connecting corridors, exposed to the air on both sides, and open or closed, as might be preferred in particular cases. The number and the mode of connection of the circular wards themselves would also vary in different instances.

"(*g*) The number of circular wards placed one above the other might likewise be varied. One floor only would be preferable for fever hospitals, for example, or in situations where ground space was of no consideration. But in towns, or on limited areas, two, or at most three, floors should be the limit. If three such circular wards as I have described were placed one above the other, a *circular Ward Tower* would be formed, containing either sixty-six or only fifty-four patients *under one roof*. I would prefer the smaller number. The severest standard (Billings' Reports) admits eighty or a hundred as the maximum allowable number under one roof, according to the nature of the cases admitted. The superimposed wards might be without *direct* staircase communication with each other, and might have such communication secured *indirectly* from the connecting corridors. The *basement* of such circular ward might, of course, be constructed on dry arches—a point regarded of great importance by many—or, if partially used for dry and clean stores, might be intersected by wide and well ventilated passages; it would furnish suitable space for heating apparatus of any kind. On the *circular roof space*, occupied in the centre by smoke flues and ventilating shafts, a warmed day-room could be constructed, surrounded by a glazed corridor or winter garden, with an outer walk for the exercise or recreation of convalescent patients.

"(*h*) The *internal administration* of a circular ward, including its supervision by sisters or nurses, would be very easy. Unusually ample space would exist for dining tables and seats for the patients, smaller tables for sisters, clerks, or dressers, and other conveniences. Moveable surgical tables and screens might be arranged to travel on a circular tramway. Opposite to the proper corridor entrance, a door opening into a balcony might take the place of a window. A circular ward could readily be subdivided by high or low screens or partitions; whilst the control of the lighting, either by daylight or sunlight from the outside, or by central lights from within, would involve very simple contrivances.

"From its abundance of space, the curved lines of its walls, the perspective of its numerous and evenly disposed windows, and its generally diffused light, such a ward would, surely, be far more cheerful and agreeable to the eye, for both patients and attendants, than a long straight ward.

"(*i*) The *disconnection of all ward offices* from a circular ward would be easy to accomplish. Placed outside the wards, on the corridors or elsewhere, such offices would be readily lighted and ventilated by intermediate passages or lobbies having opposite windows. This of course would apply to nurses' rooms, ward kitchens, sculleries, lavatories, bath rooms, urinals, and water closets.

"(*j*) Lastly, the *administrative buildings*, the residential and official adjuncts necessary to every important hospital, including operating theatres, clinical theatres, and the out-patient and dispensary department, would be arranged in *quadrangular blocks*, from which the *circular blocks*, or *Ward Towers* for the *in-patients*, would be more or less widely detached, being communicated with only by the open or partially open corridors.

"The foregoing considerations appear to me to show that the suggestion of a circular form of wards deserves attention. If the conclusions I have arrived at are sound, they at least indicate certain advantages offered by that form for hospital wards; and those advantages are in the direction of sanitary improvement, comfort and administrative facility."

Mr. P. Gordon Smith, generally concurring in the views set forth by the Professor, shews by plans how adaptable the system is to various sized Wards and peculiar shaped sites, and he adds the following criticism as to the question of cost and architectural effect:—

"Upon the question of cost of construction of circular ward blocks there is much to be said. The quantity of walling in a circular ward is (as has been shown by Professor Marshall) less than in a parallelogram-shaped ward for a corresponding number of beds; and although its circular form might perhaps make the actual cost of construction slightly more than that of straight walls, there would on the whole be a saving in this respect. The quantity of flooring in a large circular ward being greater than in a corresponding parallelogram-shaped ward, would involve some additional cost; while the construction of the floor of a circular room of large diameter would be more complicated, and therefore somewhat more costly than that of an ordinary shaped ward. In the same way the cost of roofing a circular ward would be greater than that of the simple span roof of a parallelogram building. Wards of ordinary shape are usually about 24 feet wide, rarely exceeding 30 feet in width, and hence it is always possible to frame a roof or a floor of such bearing in a simple manner; but when the space to be roofed or floored is circular, and of considerable diameter, it would be expedient to introduce intermediate bearings. This might be done to a certain extent by utilising the central chimney stack as a means of support; and in the case of the largest size circular wards, iron columns might be needed between the external wall and such central support. By the use of iron girders radiating either from the central chimney stack or from columns as supports at one end to the external wall at the other end, with rolled iron joists and Dennet (concrete) arching between them, an excellent and incombustible floor would be formed, on which an oak or other wood surface could be provided. It would not be expedient, I think, to make the ceiling of a large circular ward uniformly flat: because in a large room such a ceiling might possibly diminish the apparent height of the ward and give it a depressing effect. If the soffit of the arching and the lower portion of the girders were exposed, the appearance of one large expanse of ceiling would be avoided: and I do not doubt that, by the use of judiciously chosen tints, the whole of such a ceiling might be made to have a fairly satisfactory effect. Ceiling, floor, and roof construction, however, of the sort here suggested, must be expected to be more costly than the ordinary floors and roofs of simple parallelogram-shaped ward pavilions.

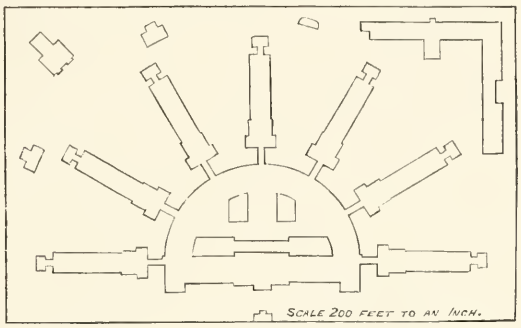
"The construction of the flat roof of a circular block of wards would follow very closely what I have just described for the floors, except that it would be covered with lead or asphalte or other similar material. If a slated roof were decided on, the arching might be dispensed with, and either a wooden or an iron structure formed in lieu thereof, to give the slates the requisite pitch and to hold up the necessary ceiling of the ward immediately beneath. This would be a somewhat less expensive mode of construction, but the advantage of being able to use the flat roof as a place for air and exercise for the convalescent patients would be forfeited.

"There is but little else to say regarding the construction of circular wards in the very general remarks to which I am limited by the length of this Paper; but I may observe in reference to the relative cost of curved or circular work to plain or straight work, that in ordinary circular wards the window sashes and frames, the glass, and the doors, would, of course, not necessarily be curved. The window sills and the lintels of the windows and doors, however, would follow the curve of the external wall; but inasmuch as these might be made of concrete cast in moulds, as is now frequently done in the case of large buildings, the cost of them would not differ from that of similar work in ordinary shaped pavilions. Upon the whole I think that the difference of cost between a circular block of wards and an ordinary pavilion, for a corresponding number of beds, with equal wall space per bed, would be but slightly in favour of the straight building.

"It now only remains for me to say a few words regarding the appearance of a circular block of wards. Perhaps it will be enough for me here to refer to the favour which circular buildings seem to have found with artists from remote times down to the present day. Whether we look at the Castle of St. Angelo or the tomb of Cecilia Metella at Rome, the Baptistry, or even the Leaning Tower at Pisa, the curved apses of many churches, or the Albert Hall at South Kensington, I do not think we shall find much difference of opinion as to the satisfactory appearance of which the circular or elliptical form of building is capable. The building may be enriched by recesses, alcoves or balconies, or it may be quite plain, but the circular form of itself may be trusted always to produce charming effects of soft light and shade. In fact, the circular form of hospital ward, in skilful hands, would lend itself in the most happy manner to the production of buildings which would undoubtedly be the pride of the towns possessing them."

The design illustrated upon the accompanying plate represents better than any of the others in this book what in the author's opinion, is the arrangement that should generally

prevail in the planning of a Workhouse Infirmary, and the subjoined woodcut shows that such an arrangement would quite easily adapt itself to the parallelogram shape of Ward.



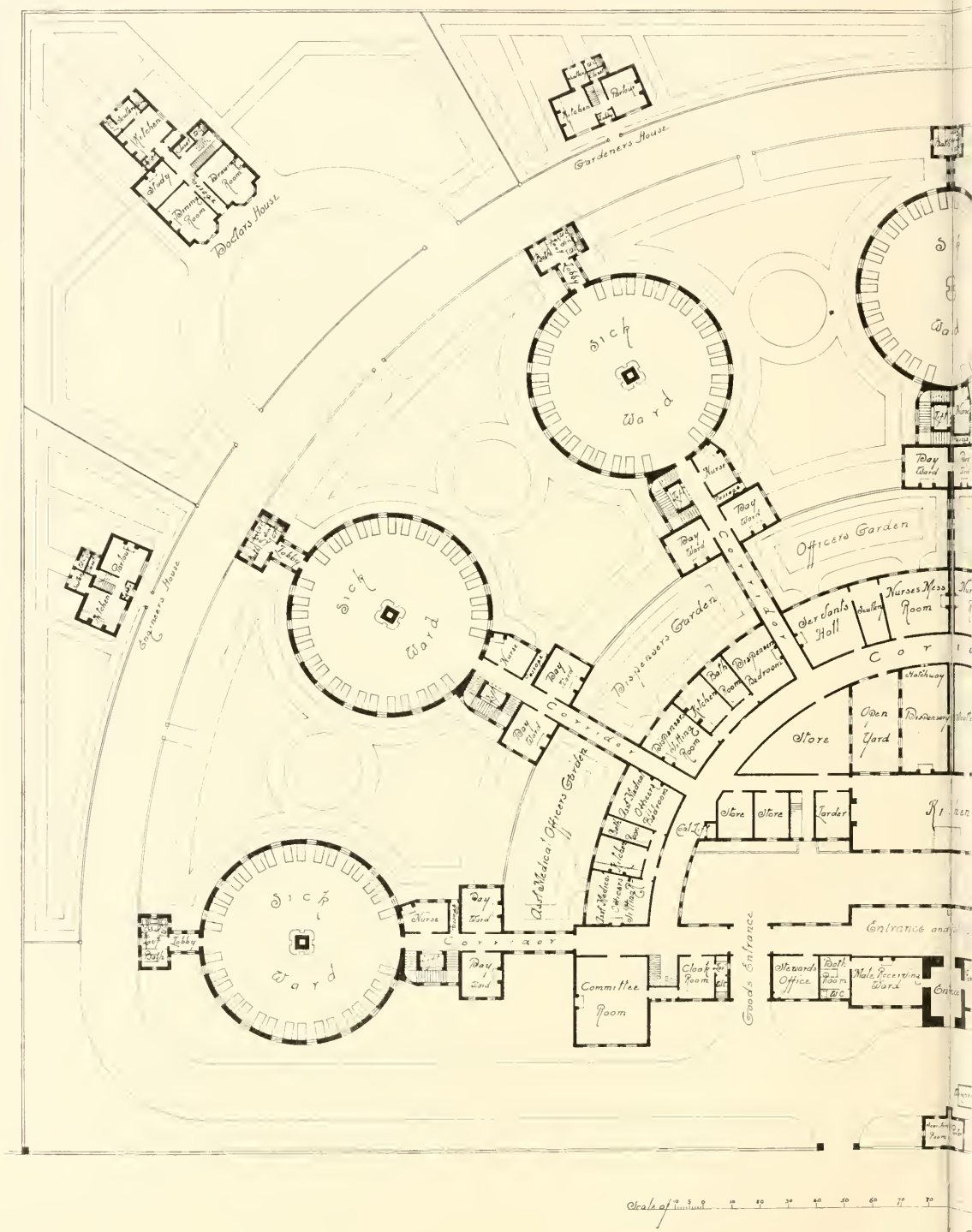
The building, as shewn upon the accompanying plans, would contain the following accommodation for 700 Inmates, it being assumed that the circular Pavilions are three stories in height. If, however, they were only two stories high, the number of Inmates would be reduced to 476, or, if four stories high, increased to 980.

	Area in ft.
21 Wards, each for 32 Beds, and each	3,848
38 Day Rooms, to be used when required as separation Wards for 4 Beds, and each	210
14 Day Rooms, and each	210
28 Nurses' Duty Rooms ... each	150
24 Bath Rooms ... ... ,,	58
14 Linen Closets ... ... ,,	58
In the Closet on the lower floor of each Pavilion and, adjoining the Lift, would be placed moveable Baths for use when required at the bedsides of patients.	
Each Pavilion would have on each upper floor 3 w.c.'s, 2 Sinks, and Lavatories, and on ground floor 2 w.c.'s, 1 Sink, and Lavatories.	
Each Pavilion would be provided with a direct-acting Hydraulic Lift (7 in all), and in the basements there would be Furnace Rooms, containing Boilers for heating purposes.	
The Staircases surrounding the Lifts, and also the Corridors, being of York stone supported upon brick vaulting, these portions of the buildings would be fire-proof.	
ADMINISTRATIVE OFFICES:	
Vestibule	342
Entrance Hall and Waiting Room	1,275
Porter's Office and Searching Room ... ... each	80
Two Receiving Wards for Males and Females ... ... each	425
One Bath Room and w.c. to each, and each	150
Committee Room	775
,, ,, Cloak Room, Lavatory, &c.	216

	Area in ft.
Dispensary	592
Medical Officer's Consulting Room	240
Matron's Office	240
Steward's Office	240
Chaplain's Room (marked on plan "Spare Room")	240
Medical Officer's Drawing Room...	256
,, ,, Dining Room ...	256
,, ,, Study	147
,, ,, Kitchen	192
,, ,, Scullery	54
,, ,, Larder, Coal and Wine Cellars...	150
,, ,, Bed Room ...	184
,, ,, ,, ...	135
,, ,, ,, ...	104
,, ,, ,, ...	72
,, ,, Bath Room ...	54
,, ,, w.c.'s, China and Linen Closets, &c.	
Assistant Medical Officer's, Matron's, Steward's, and Dispenser's Sitting Rooms ... ... each	374
Ditto Bed Rooms ... ... ,,	374
Ditto Kitchens ... ... ,,	221
Ditto Bath Rooms and w.c.'s ,,	102
Engineer's and Gardener's Living Rooms ... ... each	168
Ditto Kitchens ... ... ,,	168
Ditto Sculleries ... ... ,,	49
Ditto Two Bed Rooms ... ,,	168
Ditto Pantry, Coals, w.c., &c.	
26 Nurses' Bed Rooms, average ,,	112
6 ,, ,, ,, ,,	123
11 ,, ,, ,, ,,	157
1 ,, ,, ,, ,,	285
2 ,, Bath Rooms ,, w.c.'s, Linen Closets, &c.	130
General Kitchen	1,950

	Area in ft.
General Scullery	592
Servants' Hall	484
Officers' Day or Recreation Room	594
,, Mess Room	484
,, Reading Room	440
,, Book Room	154
,, Scullery	198
Store Rooms, Larders, &c.... ...	3,500
Inmates' Clothing Store	550
General Coal Stores, with Lifts for Raising Coals to Ground Floor	3,000
LAUNDRY, &c.	
Receiving Room	348
Wash-house	1,068
Officers' Wash[illegible]e	330
Drying Room with Horses ...	504
Ironing and Folding Rooms ...	1,068
Clean Linen Store and Delivery Room	348
Infectious Wash-house	552
Disinfecting Closet	144
Laundress' Living Room	241
,, Bed Room	120
,, w.c., Coal Store, &c....	52
Boiler and Furnace Room... ...	628
Engine Room	217
Furnace Coal Store...	94
Dead-house	528
Post-mortem Room...	288
Stable	184
Harness Room	72
Carriage and Ambulance Shed ...	270
Hay Loft	159
Coachman's Living Room	163
,, Bed Room	130
,, Scullery	92
,, Pantry, w.c., &c., &c.	
4 Workshops... ... ... each	384
Dust-house	192
w.c.'s, Urinals, &c., &c.	

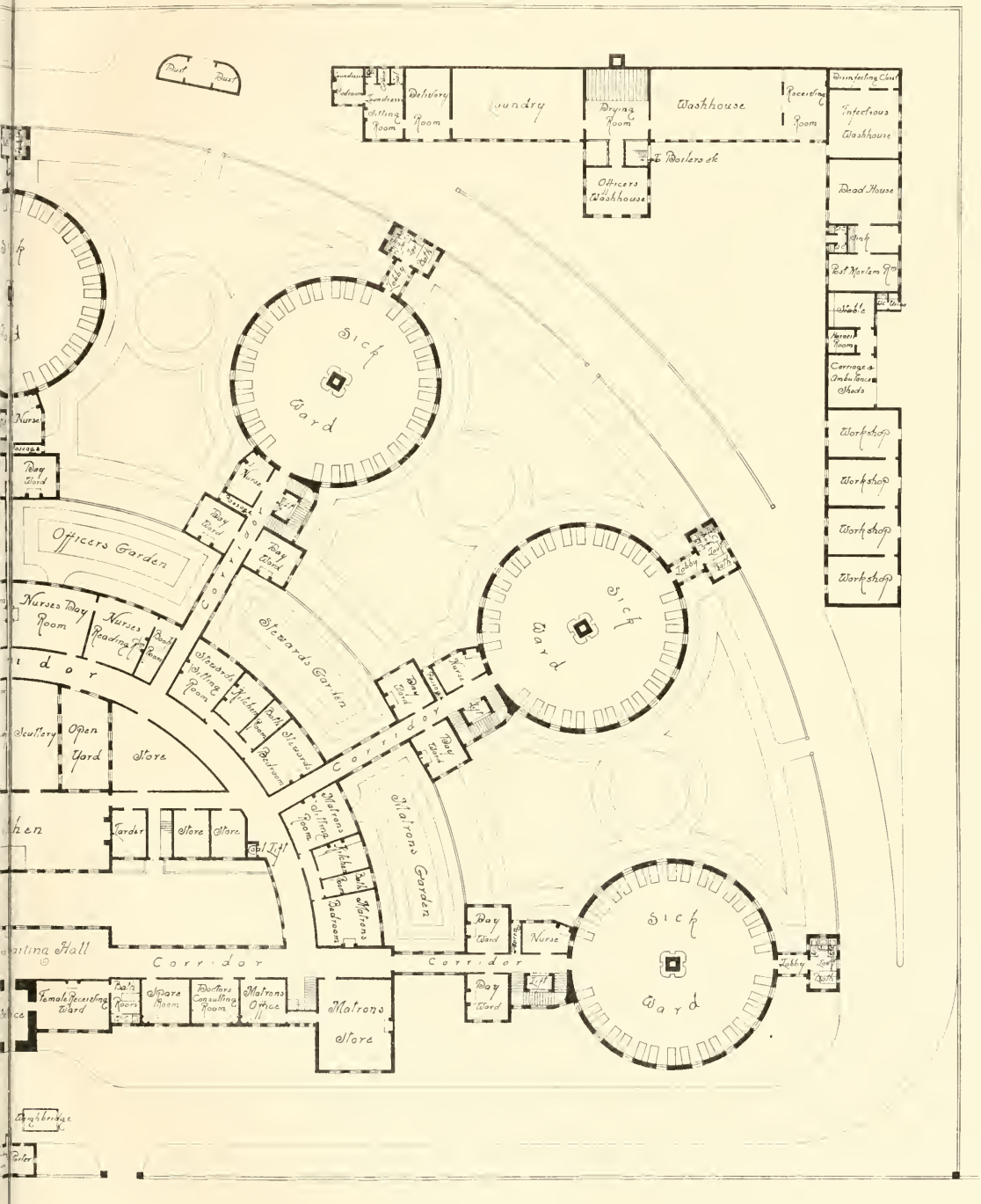
Design for a Workhouse Infirma
Wards on Professor



Ground

Lith. Lithographed & Printed by James Akerman, 6, Queen Square W.C.

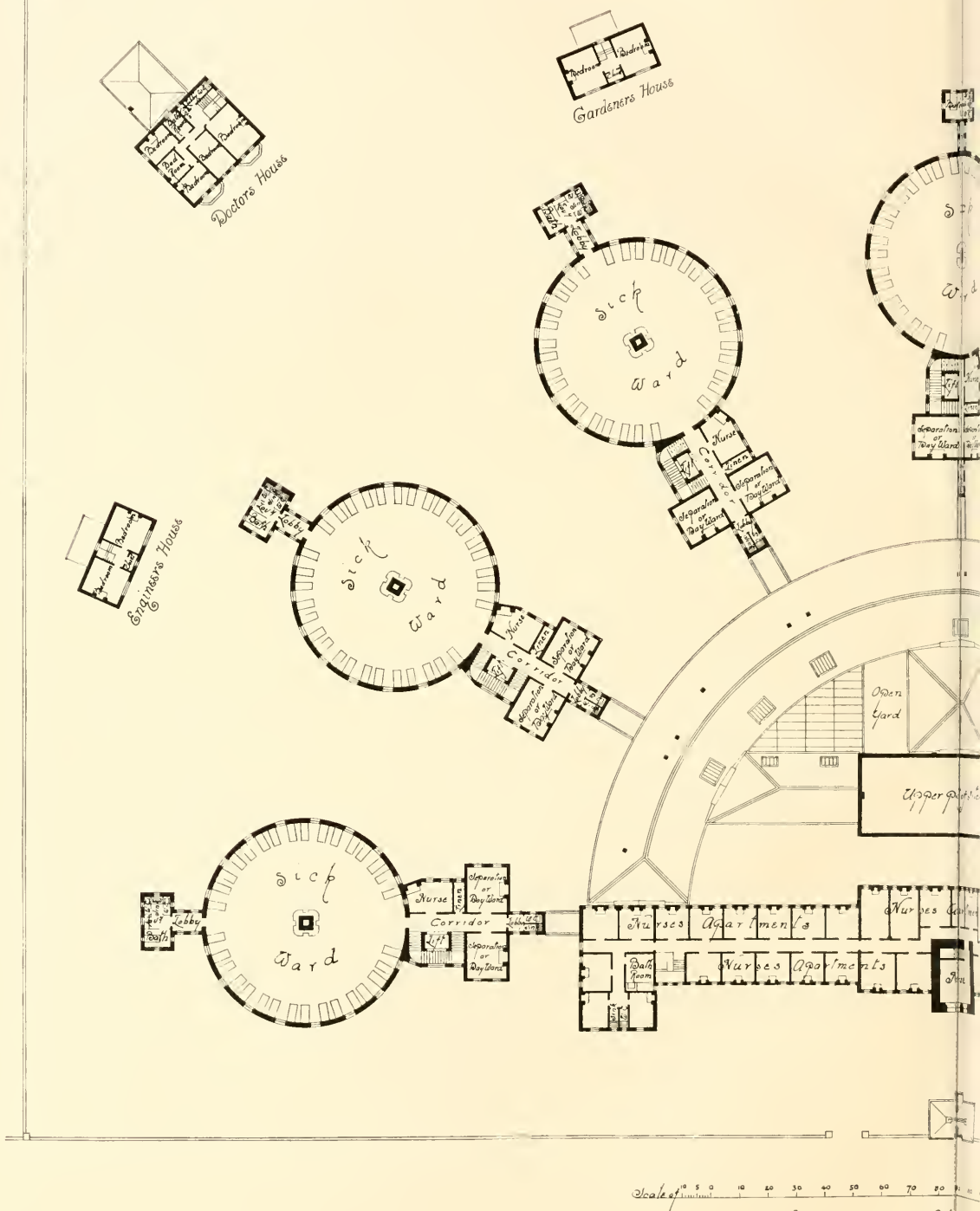
ary for 700 Inmates with Circular
on Marshall's System



Plan

H. Saxon Snell & Son
Architects
22 Southampton Buildings
W.C.

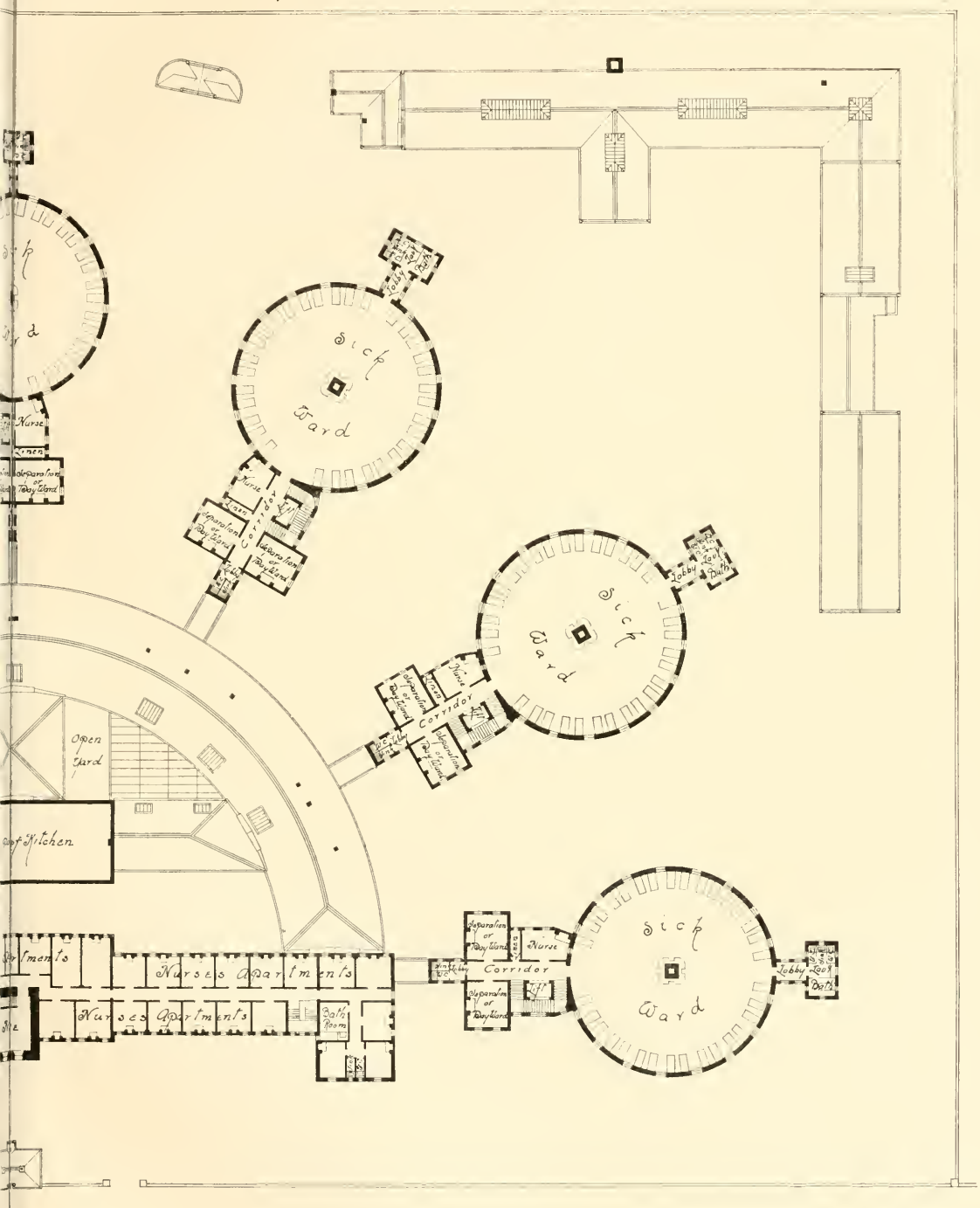
Design for a Workhouse Infirm
Wards on Professor



First Floor

Lithographed & Printed by James Akerman 5 Queen Square W.C.

...nary for 700 Inmates with Circular ...or Marshall's System


Sick Ward
Nurse
Corridor
Open Yard
Nurses Apartments
Nurses Apartments
Nurses Apartments
Nurse
Corridor
Sick Ward
Corridor
Sick Ward
Sick Ward
Nurse
Corridor
Nurse
Corridor
Nurse
Corridor

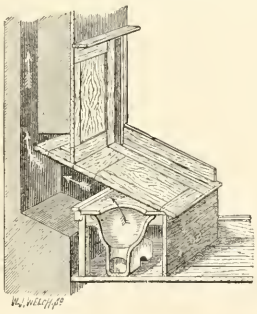
Water Closets, Sinks, Baths, &c., for Sick Wards.

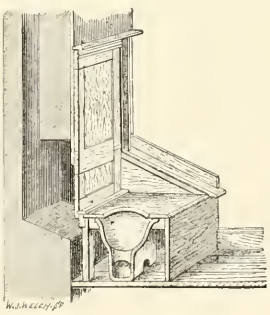
As it is always desirable that w.c.'s, Baths, and Lavatories should be placed immediately contiguous to all Wards occupied by the Acute Sick, too much care cannot be bestowed upon the endeavour so to construct these offices that the chance of any foul air from them entering the Wards shall be reduced to a minimum; and to this end it has in all modern buildings been deemed advisable to separate the two by a lobby, having opposite windows for cross ventilation. If these windows properly perform the functions allotted to them it is clearly desirable that they should be as far distant as possible from any of the Ward windows, otherwise the fouled air would, when the wind sets in certain directions, be blown into the Wards through these adjoining windows when open; and, to avoid this, it is therefore always better to place these offices directly at the ends of the Wards, rather than, as is usually the case, at the sides.

Arrangements are seldom made for the heating of these lobbies and w.c.'s, and, in consequence, the air is drawn through them into the Wards, whereas when they are heated to a higher temperature than the Wards, the passage of the air is, as it should be, in an opposite direction. Moreover, it is clearly often prejudicial to the recovery of patients that they should periodically be compelled to remain, in a more or less nude state, in an atmosphere often very many degrees colder than that of the adjoining Wards.

The accompanying plate shews the arrangement adopted at St. Marylebone Infirmary, and it will be seen that not only has every possible precaution been taken to prevent foul air from entering the Wards, but the pipes and fittings are so ventilated that it is hardly likely any deleteriously foul air would find its way even into the w.c.'s themselves.

Presuming, however, there is fear that foul air will at any time find its way from the soil pipes through the w.c. or slop sink traps into the apartments in which these apparatus may be placed, it may be useful to employ the contrivance shewn by the woodcuts below, which represent an invention patented by the author for so constructing the lids or covers to water-

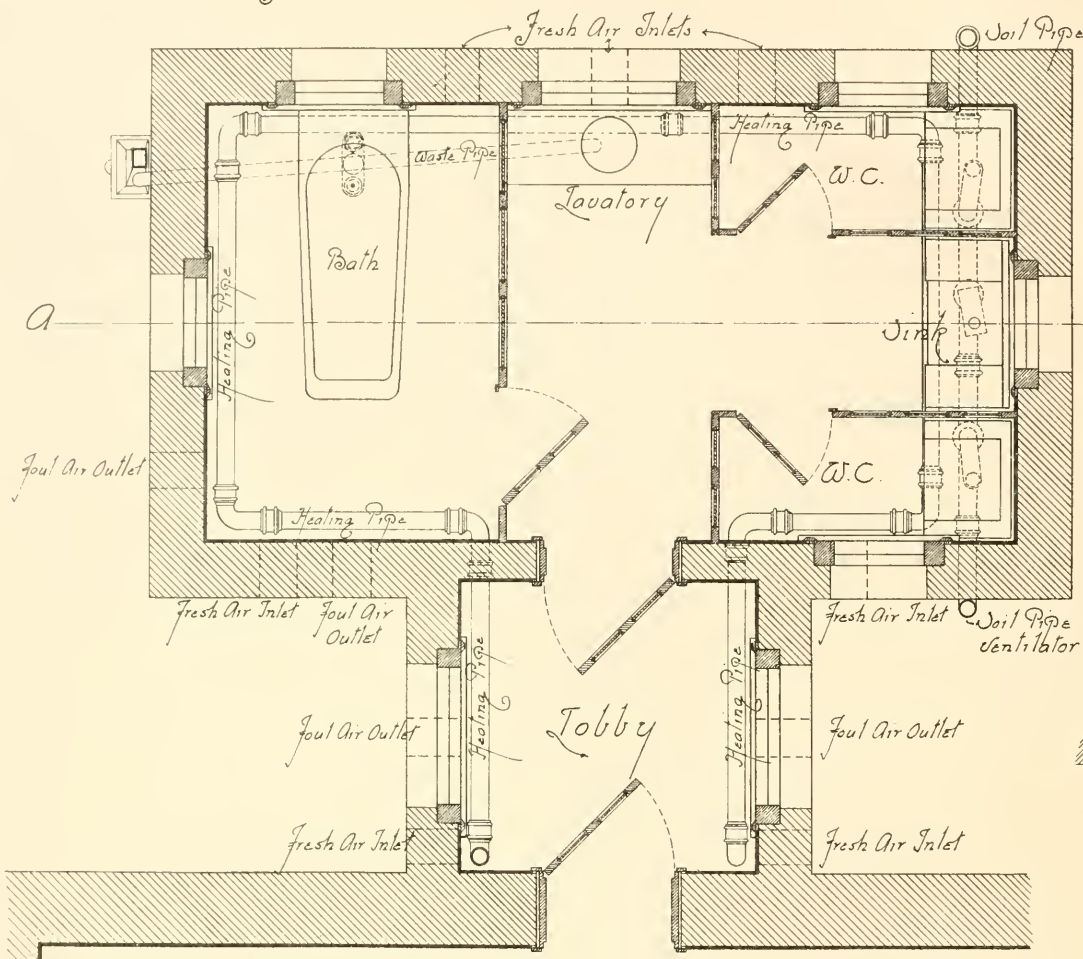




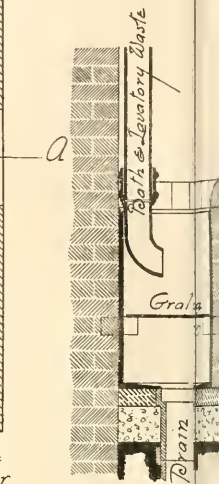
closets, sinks, or basins, that when shut down they are opened to flues built in the adjoining walls, and running upwards like ordinary chimney flues; and any offensive gases arising through the soil or waste pipes, or escaping from flaws in the joints thereof, would thus be carried upwards and away to the outer air instead of entering the room. Moreover, these water closet lids are so contrived that the action of shutting them down empties and flushes the apparatus similarly to the action resulting from pulling up the handle in the ordinary manner, and, consequently, any upward rush of foul gas from the soil pipe that may attend this operation would be rendered harmless through being conveyed by the ventilating flue into the outer air.

When these contrivances were first made, the openings at the back were carried directly into the outer air without the aid of an upright flue; but this was found objectionable, because when the wind blew towards the building, the air was forced at times inwards rather than outwards, and it was also found that in cold weather the pipes were liable to get frozen, but no such objections arise when the upright flues are employed, and means are adopted for preventing a current downwards in the flues. Any information as to this apparatus may be obtained of the maker, Mr. Edward Howard, 34 Upper Gloucester Place, London, W.

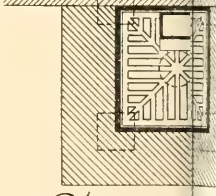
Detail of W.Cs. Sinks Lavatories & Baths at Cad



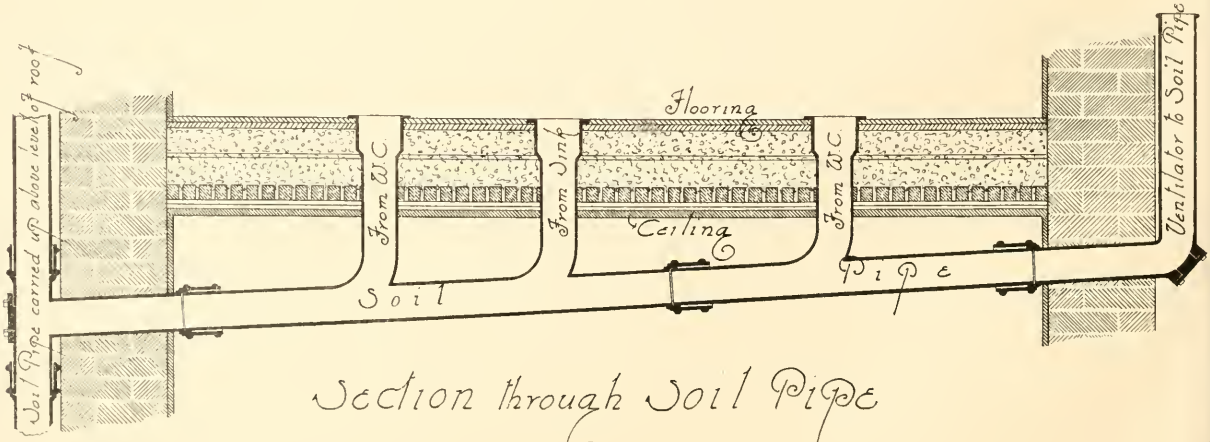
Plan



Section through C
at joo
Bath & Lavat



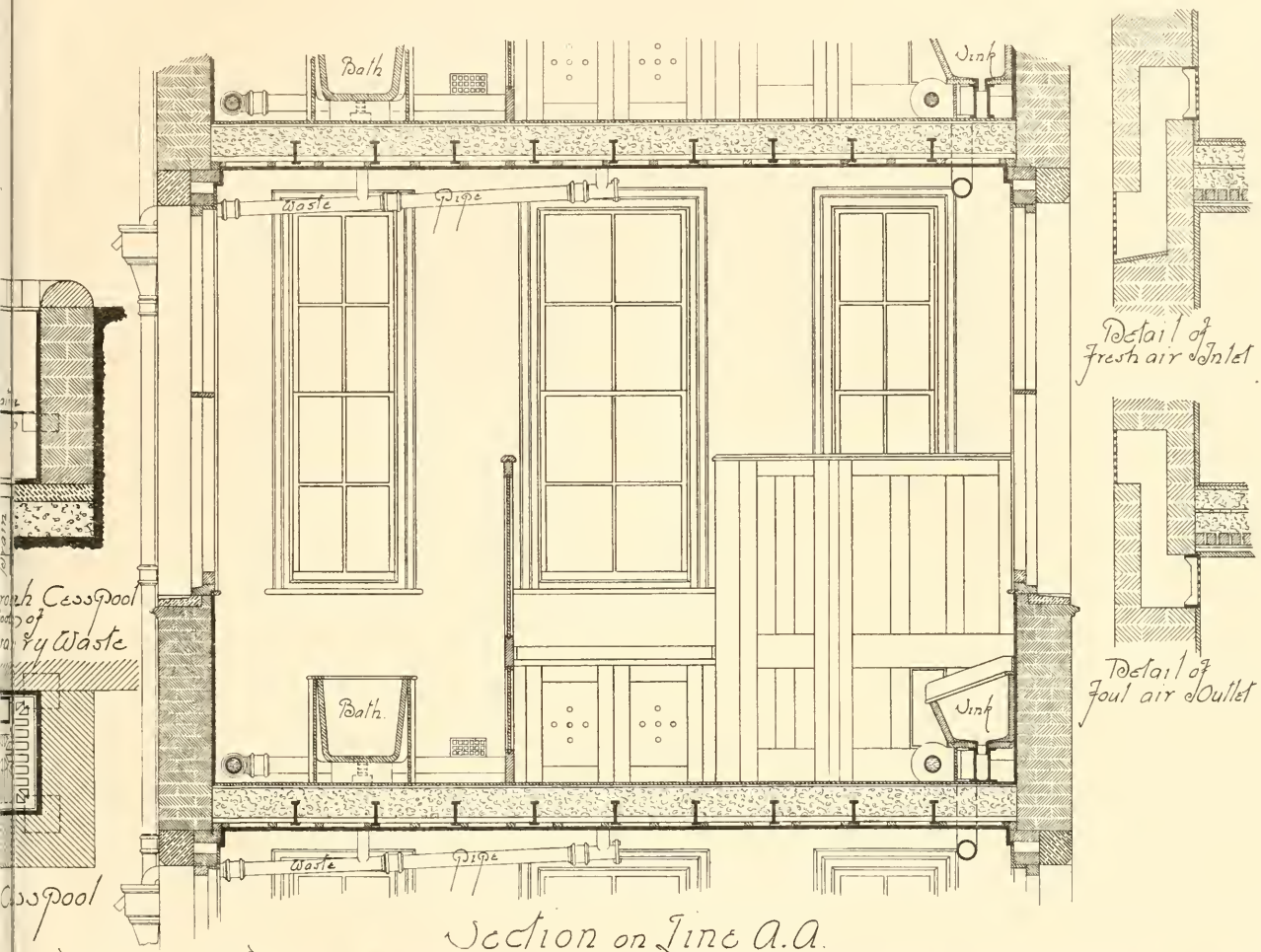
Plan of C



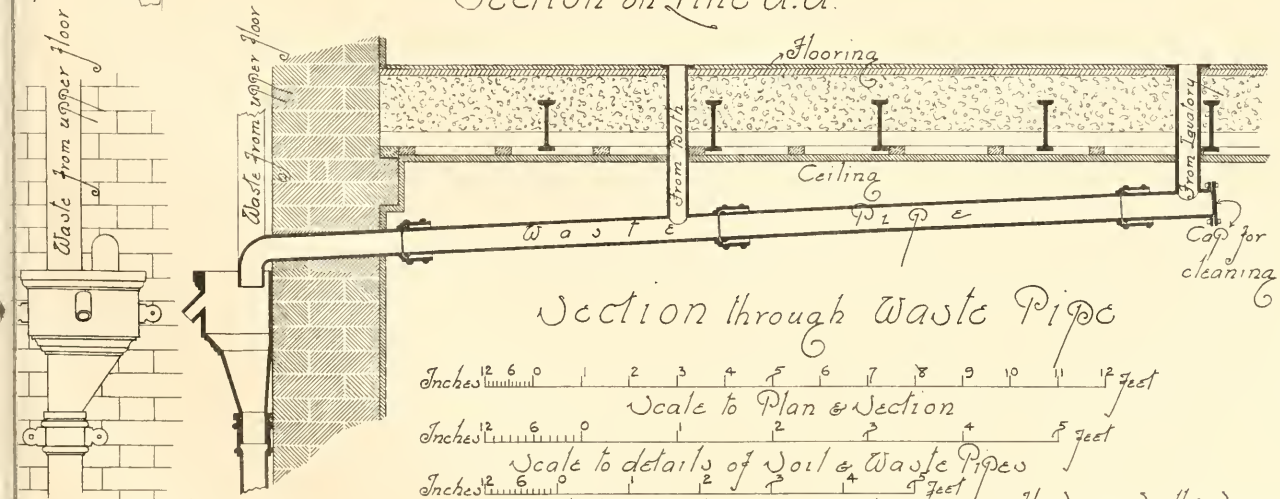
Section through Soil Pipe

Photo-Lithographed & Printed by James Akerman, 6, Queen Square W.C

...ds of Sick Wards



Section on Line a.a.



Section through Waste Pipe

Inches 12 6 0 1 2 3 4 5 6 7 8 9 10 11 12 Feet
Scale to Plan & Section

Inches 12 6 0 1 2 3 4 5 Feet
Scale to details of Soil & Waste Pipes

Inches 12 6 0 1 2 3 4 5 Feet
Scale to details of CessPool Fresh air Inlet & Foul air Outlet

H. Saxon Snell & Son
22 Southampton Bldgs W.C.

Window Sashes for Sick Wards.

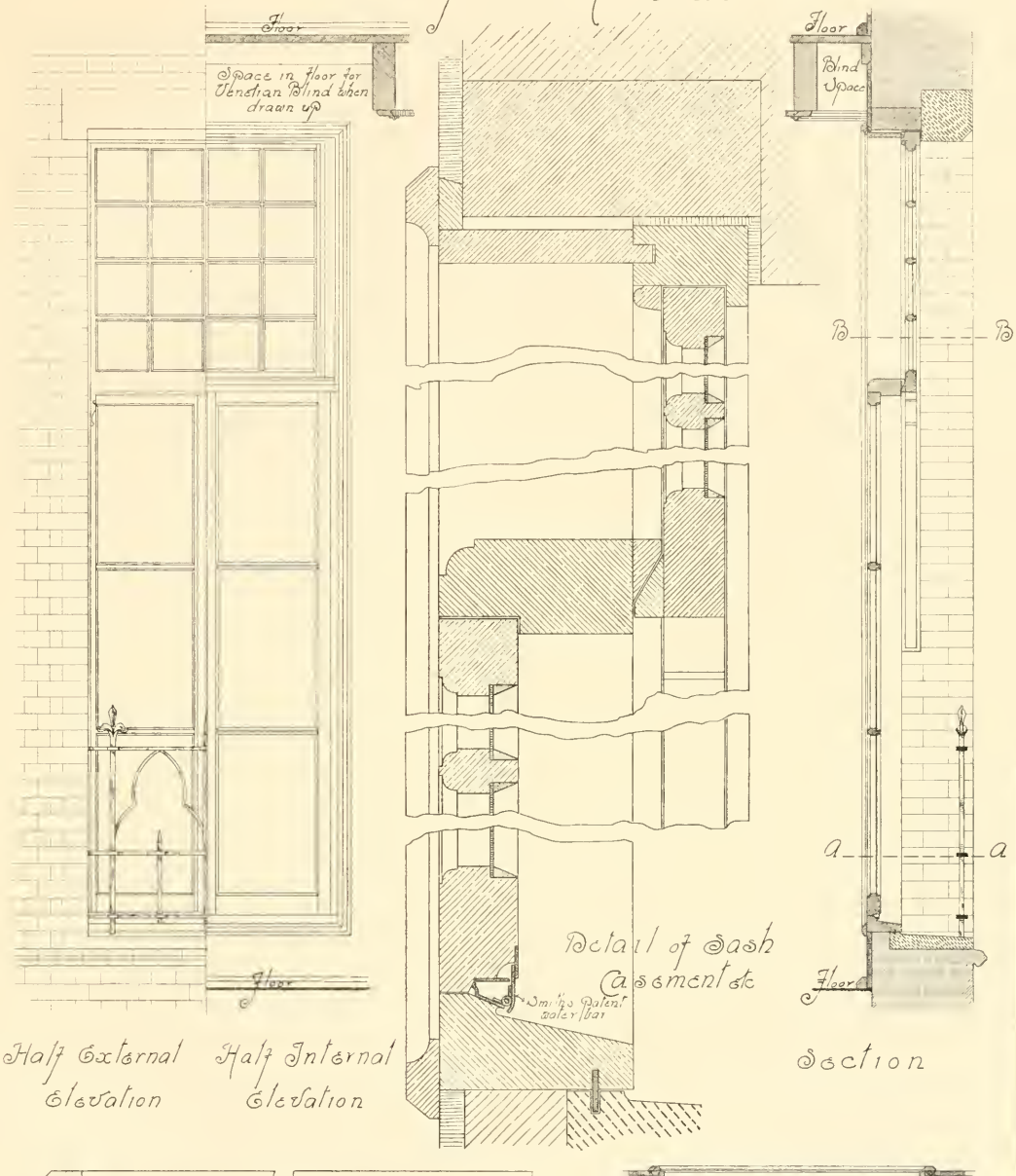
IN nearly all modern Hospitals for the Acute Sick the beds are ranged down the outer walls, and between them are the windows. The object of this arrangement is obviously to ensure a free draught of air passing between the beds and through the Wards from one window to another, whenever they are opened. It is, however, found practically impossible, in consequence of down draughts, to at all times have the windows (if of ordinary construction) so opened whilst the patients are lying in bed, excepting only when there is little wind or the external and internal temperatures are about equal. This evil has been obviated by the adoption of the combined casement and lifting sash, illustrated on the accompanying plate, for it will be seen that when these sashes are opened they form a protection to the head of the patients from any draught that may be passing through the windows while they are lying in bed, and, therefore, that cross ventilation is possible at all times without annoyance or danger to the patients.

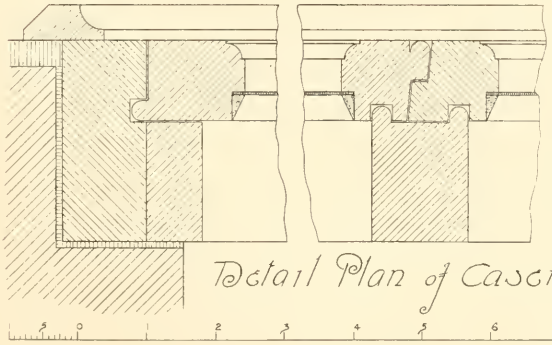
It will be seen from the illustration that these casements are so constructed as to render them more nearly air-tight than the ordinary lifting sashes, and that they are in other respects free from many of the objections appertaining to casements of ordinary construction. In order, however, to meet the prejudice of those who have been accustomed to, and still believe in, the ordinary lifting sash, it is contrived that the upper parts of the window shall open in this fashion, and be used, therefore, for additional ventilation whenever the weather will so permit. The outer part forms a balcony, upon which the patients may stand in the summer weather.

A very cheap and effective iron espaginolette bolt fastening suitable for these casements may be purchased at a cost of about 6s. each.

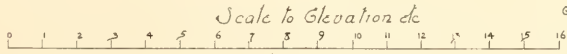
Those who desire it may see the action of these windows at St. George's Union, St. Olave's, or Holborn Union Infirmaries.

Detail of Combined Casement & Lifting Sash for Sick Wards





Detail Plan of Casement



Plan at B B

Plan at a a

H. Saxon Snell & So
22 Southampton Bu
W.C.

Printed Lithographed & Printed by James Akerman, 6 Queen Square W.C.

Thermhydric Fire-Places.

THE construction of this apparatus, shewn below and upon the accompanying plate, is such that the sides, back, and top of the fire is surrounded by a wrought-iron case containing water, and communicating by means of short tubes with upright coils of pipes so placed on either side that the water when heated by the fire circulates through them. Thus the whole of the products of combustion are utilized for heating purposes, and it will be seen that as the water cannot attain a temperature higher than 212° Fahrenheit, the iron over which the air passes cannot, as is the case with the ordinary air body stoves, be so heated as to burn the air impinging against its surface. As the water in the apparatus becomes warmed it expands and rises into the vase placed upon the top of the apparatus, and the slight vapour that is consequently emitted from this vase serves to moisten the air of the rooms in which the apparatus is placed. It will be seen that when, as in the large drawing, the apparatus is placed in the centre of an apartment, the smoke has to descend and run in horizontal pipes beneath the floor before entering the brick upright flues. The channel containing these horizontal flues is made to also serve the purposes of a duct for fresh air to pass from the outside round the stove and through the heated coils of pipes into the room. Stoves, with descending flues, are generally found to smoke when the flue gets cold, through the fires being neglected or from their being let out during the night, but this difficulty is surmounted by encasing the horizontal iron flue pipes (as shewn) in sand, as they pass through the floor. The sand retains the heat of the flue for many hours; and it is only once, therefore, if at all, and then at the beginning of the winter, that the flue will require "piloting."

These Thermhydric Fire-Places have been patented by the author, and they are manufactured by Messrs. Potter & Sons, of 44 South Molton Street, London, W., from whom all information respecting them can be obtained. They may also be seen there in operation, as well as at St. George's, St. Olave's, St. Marylebone and Holborn Infirmaries, and at many other public buildings.

When not standing in the centre of a room, but next the wall, they are constructed in the manner shewn in the accompanying *Figures*.

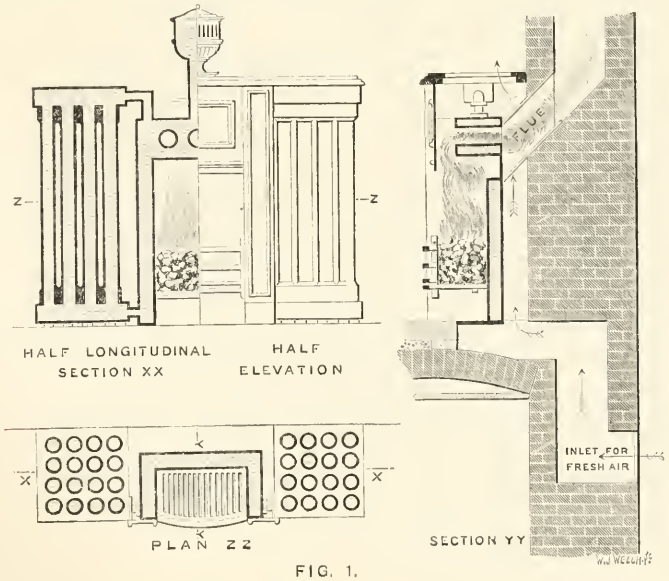


FIG. 1.

They are often enclosed in ornamental cases, one of which is shewn in the accompanying *Fig.* 2.

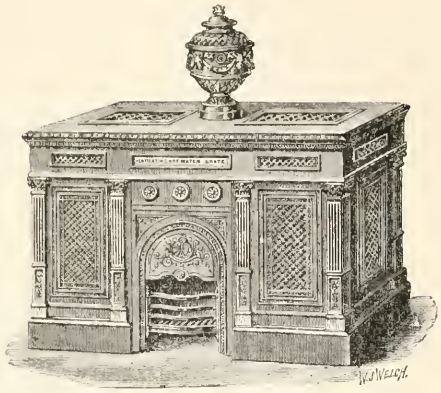


FIG. 2.

The apparatus, as fixed at St. Olave's Union Infirmary, may be compared with other central stoves of an ordinary description working in the same building, and the following letter received from Dr. SHEPHERD, the Medical Superintendent of that establishment, describes the result of his observations on their action :—

"St. Olave's Union Infirmary, "March 19th 1880.
"Deptford Lower Road.

"DEAR SIR,

"It has occurred to me that you may be pleased to hear a good report of the Patent Thermhydric Warming Apparatus which have been in use in three of the large wards here during the past winter. I must confess that I was inclined to think, from the size of the fire-places, that the old plan would give better results as far as warmth was concerned, even if at the expense of more fuel, but experience has proved to me that I was thoroughly mistaken. You will remember that of the six Male Wards, all built in a precisely similar manner, three are provided with simple open fire-places, and three are furnished with the 'Thermhydric' apparatus, the fire-places being in a precisely similar situation in all six of the Wards; this permits of an exact comparison being made, and, as a matter of fact, I have found the Wards heated by the 'Thermhydric' apparatus to be from 3° F. or 4° F. to 5° F. warmer than those heated on the old plan, notwithstanding the fact, a most important one I think, that the 'Thermhydric' grates consumed about a third less fuel.

"There are other and by no means unimportant advantages belonging to the 'Thermhydric' grates, but the above facts were, during the severe winter we are just emerging from, most striking and appreciable, and most incontestably in their favour.

"The impression left upon my own unbiassed judgment by the facts I have given is so favourable that I have felt bound in common justice to bring you acquainted with them.

"I remain, Dear Sir,
"Yours faithfully,
"R. SHEPHERD,
"*Medical Superintendent.*

"TO H. SAXON SNELL, ESQ."

Detail for Central Thermhydric Stoves for C

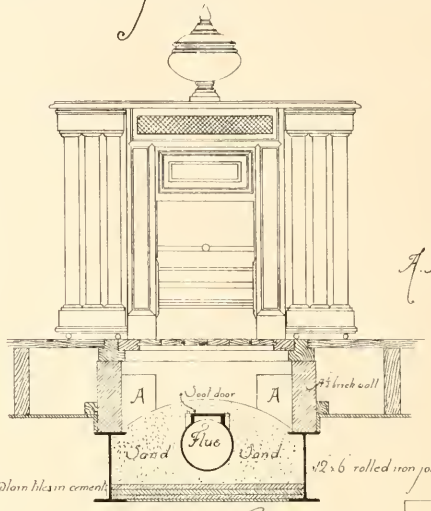
THE THERMHYDRIC
VENTILATING HOT WATER OPEN FIRE GRATE
H. Saxon Snells Patent 1874, No 379.

THIS INVENTION CONSISTS OF AN OPEN FIRE GRATE SURROUNDED ON THREE SIDES AND ON TOP BY A WROUGHT IRON CHAMBER CONTAINING WATER WHICH WHEN WARMED BY THE FIRE CIRCULATES THROUGH UPRIGHT COILS OF PIPES PLACED ON EITHER SIDE THE HEARTH IS MADE OF IRON AND THE WHOLE SPACE BELOW THE GRATE AND PIPES IS FORMED INTO A CHAMBER FOR THE ADMISSION AND COLLECTION OF AIR FROM THE OUTSIDE. THE OUTER FRESH AIR THUS ADMITTED PASSES UPWARDS AND IMPINGING AGAINST THE SIDES OF THE HOT WATER CHAMBER AND PIPES BECOMES THOROUGHLY HEATED WITHOUT BEING BURNT BEFORE ENTERING THE ROOM

THE OBVIOUS ADVANTAGE POSSESSED BY THIS GRATE IS THAT UNLIKE ALL OTHER SUCH INVENTIONS THE AIR CANNOT BE BURNT OR HEATED ABOVE THE TEMPERATURE OF BOILING WATER AND THE WATER CONTAINED IN THE VASE BEING SLIGHTLY WARMED IT EVAPORATES AND THUS KEEPS THE AIR OF THE ROOM MOIST.

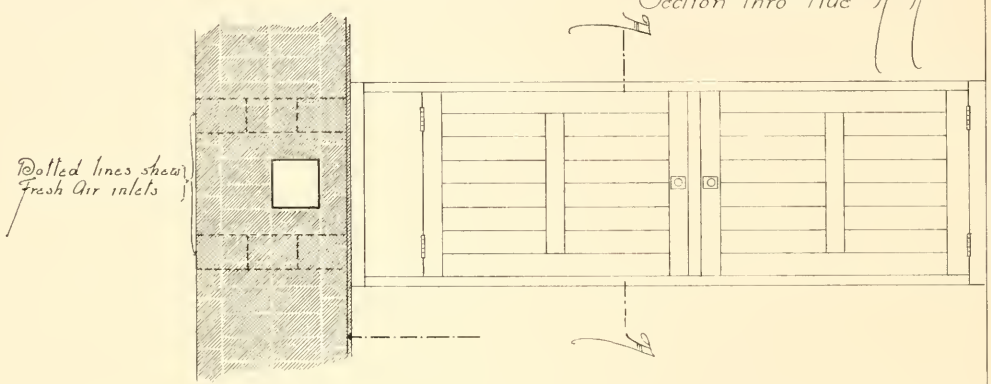
THEY ARE MANUFACTURED BY

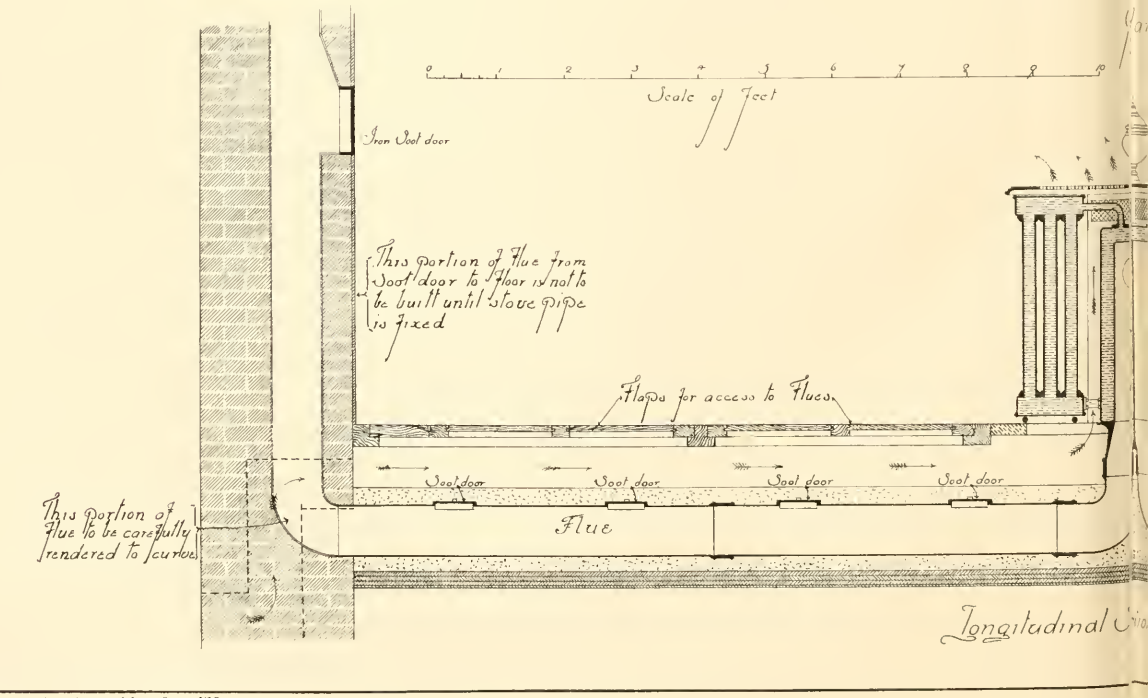
MESSRS. POTTER & SONS 298 OXFORD STREET. W.



A.A. Fresh Air inlets

Section thro Flue A A

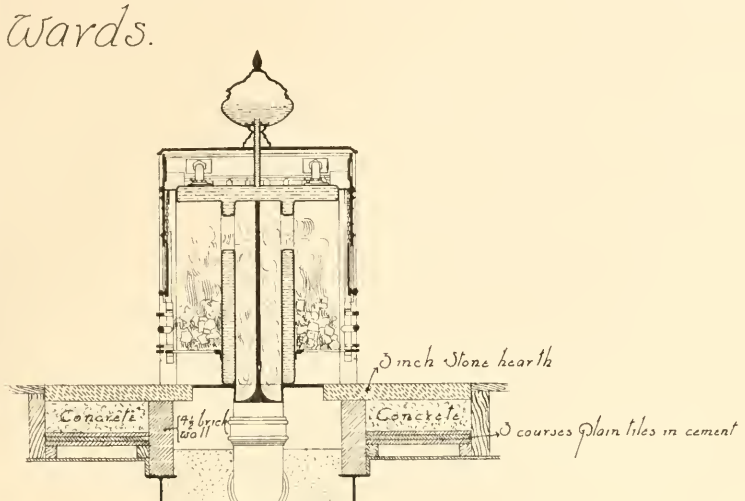



Scale of feet
Iron Soot door
This portion of Flue from Soot door to Floor is not to be built until Stove Pipe is fixed
Flaps for access to Flues
Soot door
Soot door
Soot door
Soot door
This Portion of Flue to be carefully rendered to scurface
Flue

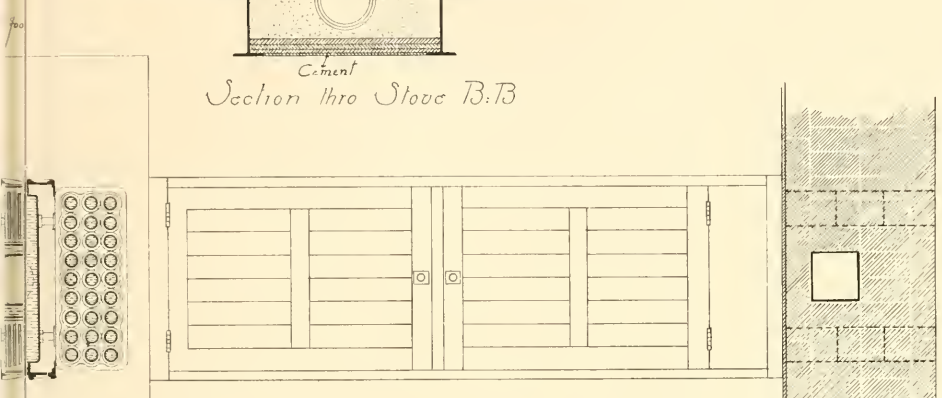
Longitudinal Sec

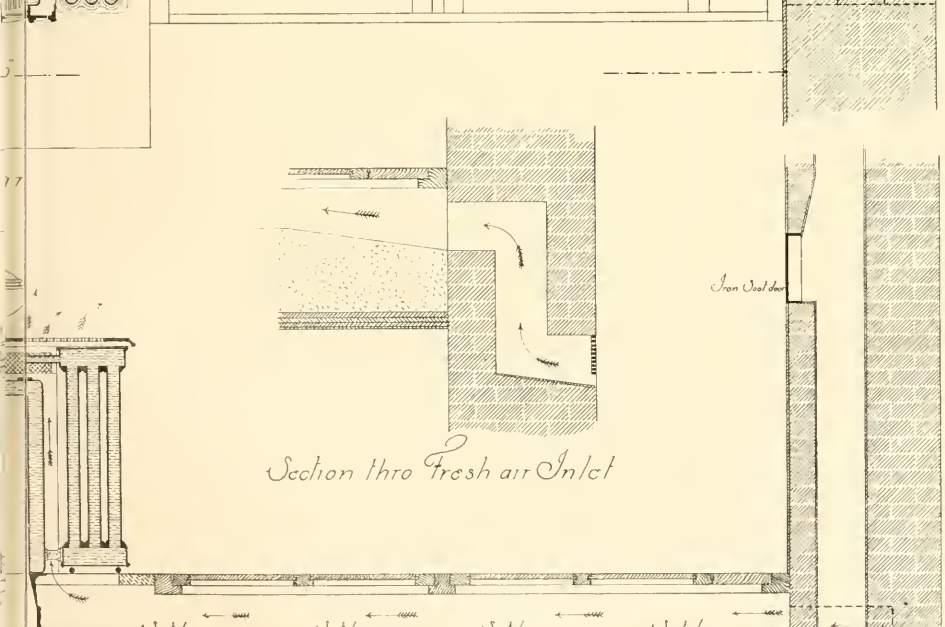
Photo-Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

ck Wards.



Section thro Stove B:B





Section thro Fresh air Inlet

or thro Stove & Flue Pipes

H. Saxon Snell & Son
22 Southampton Buildings
W.C

St. George's Union Workhouse.

FULHAM ROAD, LONDON, S.W.

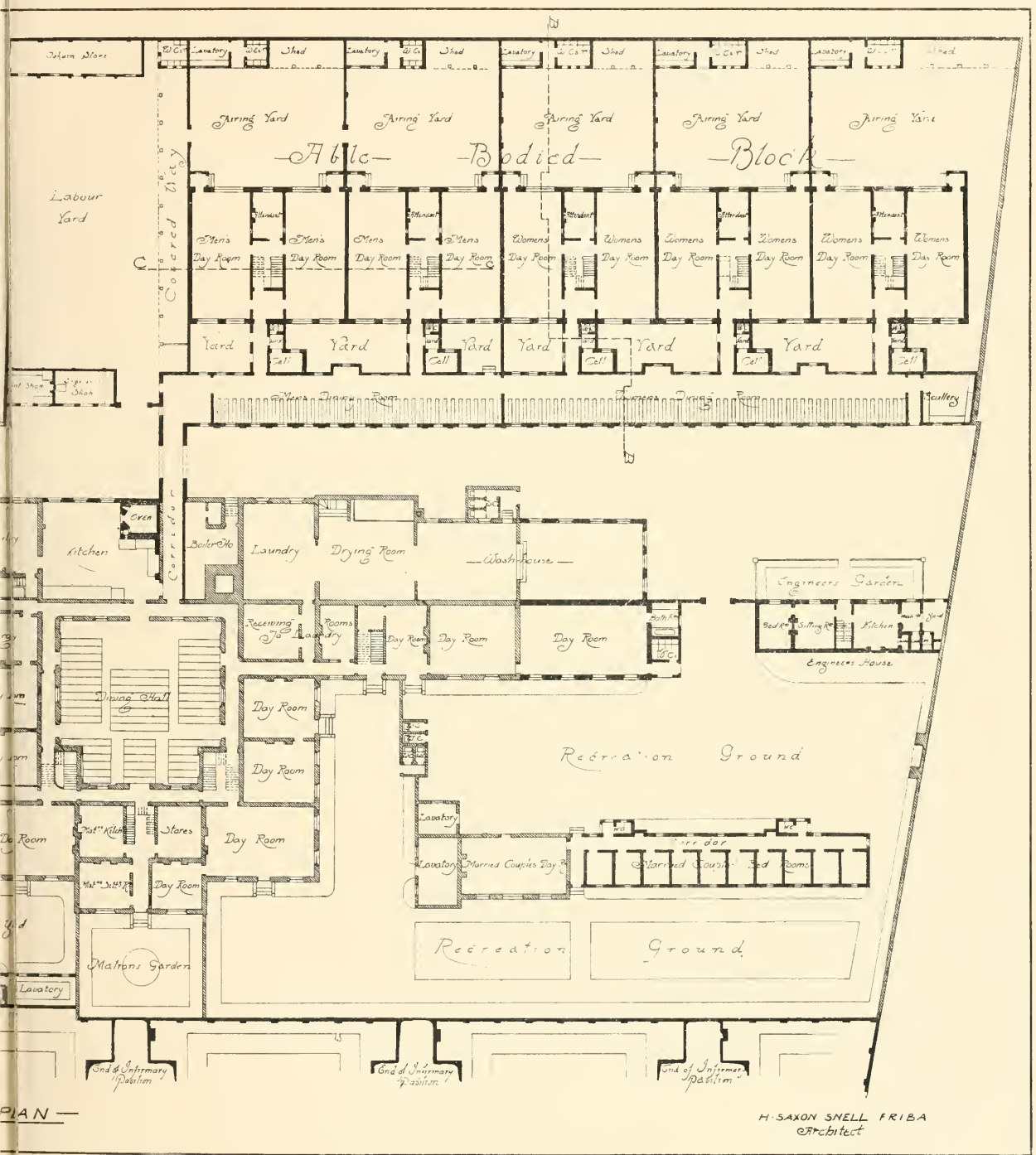
PRIOR to the year 1866 the generality of Workhouses erected in the Metropolis were so badly planned and ventilated that the then Poor Law Board caused detailed reports to be made to them by their officers as to the condition of all these buildings, and enquiries were instituted with a view to laying down rules for the construction of future pauper establishments upon better sanitary principles. Almost the only then existing building that escaped severe censure was the St. George's Union Workhouse here illustrated, and although the Day Rooms and Dormitories and many other arrangements of the old portion are not in every respect such as would be erected at the present time, the building, now that it has been remodelled and enlarged, may be taken as a fairly good example of the requirements of a Metropolitan Workhouse. It must not, however, especially in the details of the old portion, be taken as a model for any new Workhouse. The Able-bodied Block is a new building, and is generally found to be well-arranged, lighted, and ventilated, though it may be as well to state that the Local Government Board are not generally favorable to the plan here adopted of ranging the beds down the inner walls. It would have been an improvement if the site had permitted the erection of Work Rooms in addition to the Day Rooms. The Chapel is also a new building, and it is so arranged that the inmates of the Infirmary adjoining can reach it through the covered way shewn on the plans. The area of the site is about three and a-half acres.

It will be observed that the old portions of the building are indicated on the plans by etching, whilst the walls of the new portion are fully blackened.

The building, as now altered, provides accommodation for 256 Male Infirm; 360 Female Infirm; 152 Male Able-bodied, and 228 Female Able-bodied, besides 20 of both sexes in the Reception Ward, as follows, viz.:—

	Area in ft.
AGED MALE WARDS *(situated left of the Master's House)*:	
4 Day Rooms, together	4,128
5 Work Rooms	1,009
Dining Hall	1,834
Scullery	339
4 Dormitories for 123 Beds on first floor, together	6,384
4 Dormitories for 123 Beds on second floor, together	6,384
w.c's, Urinals, Lavatories, Bath Rooms, Linen Closets, Cloak Room, &c.	
AGED FEMALE WARDS *(situated right of the Master's House)*:	
4 Day Rooms, together	4,811
Dining Hall	2,318
13 Dormitories for 156 Beds on first floor, together	6,730
14 Dormitories for 194 Beds on second floor, together	7,472
4 Nurse's Rooms, each average	218
w.c.'s, Lavatories, Bath Rooms, Linen Closets, &c.	
MARRIED COUPLES' ROOMS:	
Day Room	585
Lavatory and Bath Room	114
10 Bed Rooms each	80
w.c.'s, Linen Closets, &c.	
ABLE-BODIED WARDS:	
4 Men's and 6 Women's Day Rooms each	707
2 Men's and 3 Women's Lavatories each	96
8 Men's and 12 Women's Dormitories, each for 20 Beds, and each	720
4 Men's and 6 Women's Bath Rooms each	70
15 Attendant's Rooms ,,	135
5 Refractory Cells ,,	60
Yard, w.c. &c., to Refractory Cells.	
Men's Dining Hall	1,346
Women's ,, ,,	1,882
Scullery	236
Oakum Store	464
8 Urinals, 8 Men's w.c.'s, 18 Women's w.c.'s, and 3 Officer's w.c.'s.	
Labour Yard for Stone-breaking, with w.c.'s, Urinals, &c.	
ADMINISTRATIVE OFFICES:	
Porter's Living Room	120
,, Bed ,,	120
,, ,, ,,	120
w.c., Yard, and General Meter House.	
Male and Female Receiving Wards, each	306
Male Receiving Ward Bath Room	120
Female ,, ,, ,, ,,	106
Yards, w.c., &c. &c.	
Committee Room	423
,, ,, w.c. and Lavatory	72
Office	138
Medical Officer's Room	303
Master's and Matron's Dining Room	330
Master's and Matron's Drawing Room	359
Master's and Matron's Kitchen	231
,, ,, Scullery	77
,, ,, Larder, Coals & 2 w.c.'s, &c.	
,, ,, Bed Room	201
,, ,, ,,	154
Master's and Matron's Bed Room	123
,, ,, ,,	95
,, ,, Bath Room	95
Assistant Matron's (marked on Plan "Matron's") Sitting Room	228
Assistant Matron's Kitchen	220
,, ,, Bed Room	228
,, ,, ,, ,,	148
w.c.'s, Linen Closets, &c.	
Engineer's Living Room	168
,, Kitchen	189
,, Scullery (marked "Washhouse")	51
,, Bed Room	204
,, ,, ,,	181
,, ,, ,,	140
,, Pantry, Coals, w.c., &c.	
Labour Master's Sitting and Bed Room	196
Master's Clerk's Sitting and Bed Room	196
General Kitchen	1,089
,, Scullery	484
,, Store Room	1,663
,, Coal Cellars	1,640
LAUNDRY, WORKSHOPS, &c.:	
Receiving Room	293
Wash-house	1,640
Ironing and folding and Drying Room	1,185
Clean Linen Store and Delivery Room	170
Boiler House, Engine Room, &c.	1,020
Paupers' Clothes Store	616
Carpenter's Shop and Timber Store	1,680
Engineer's Shop	200
Painter's Shop	180
w.c.'s, Dust-hole, &c.	

ALTERATIONS AND ADDITIONS TO S.t GEORGE'S UNION WORKHOUSE FULHAM ROAD S.W.

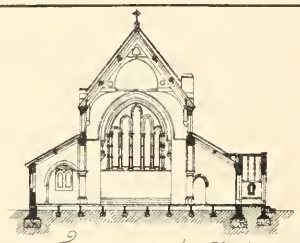


PLAN —

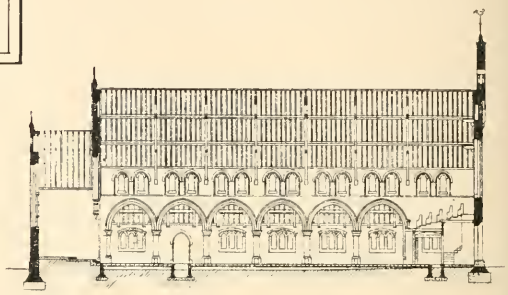
H. SAXON SNELL FRIBA
Architect

ALTERATIONS AND ADDITIONS TO S^t GEORGE'S UNION WORKHOUSE FULHAM ROAD S.W.

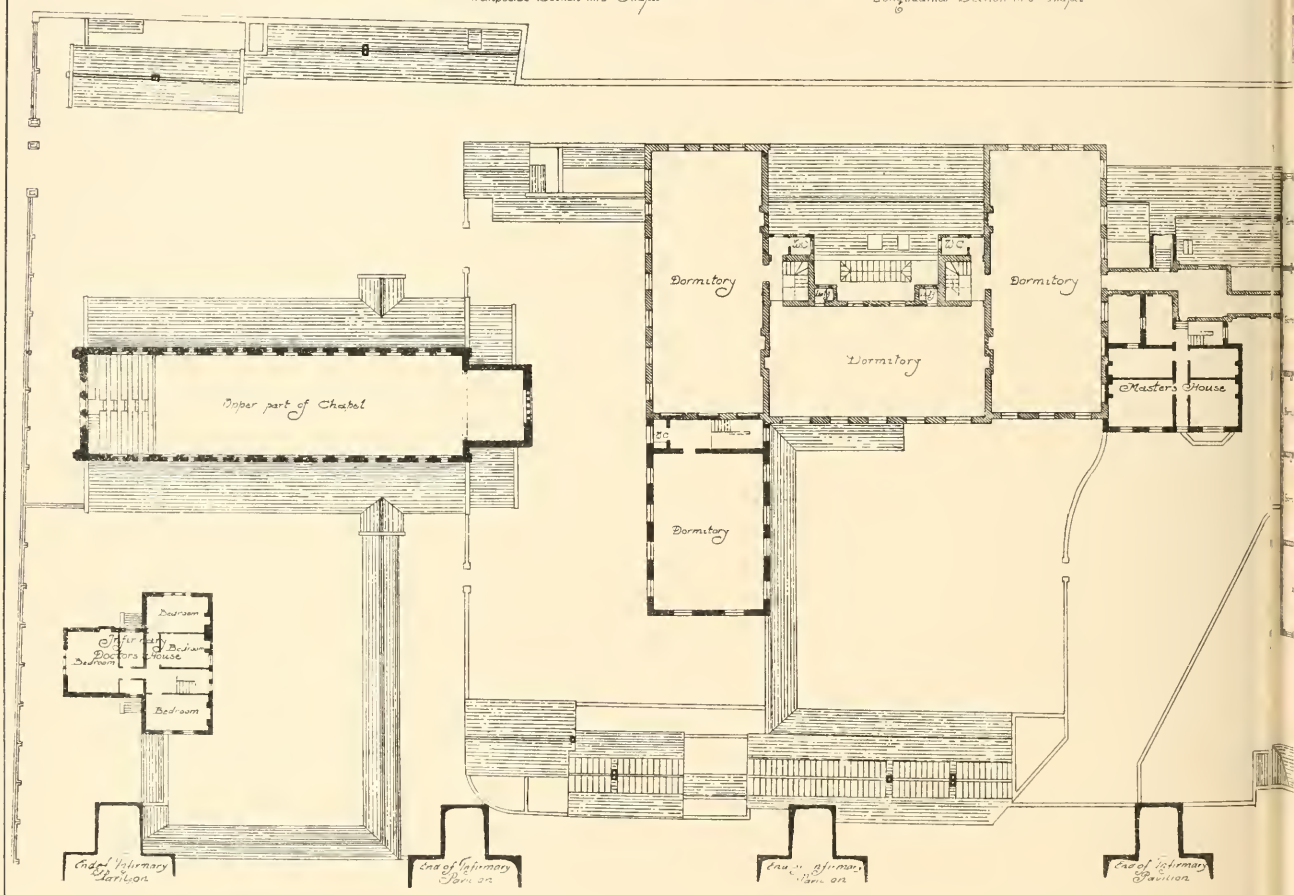
Old Work
New Work



Transverse Section thro Chapel

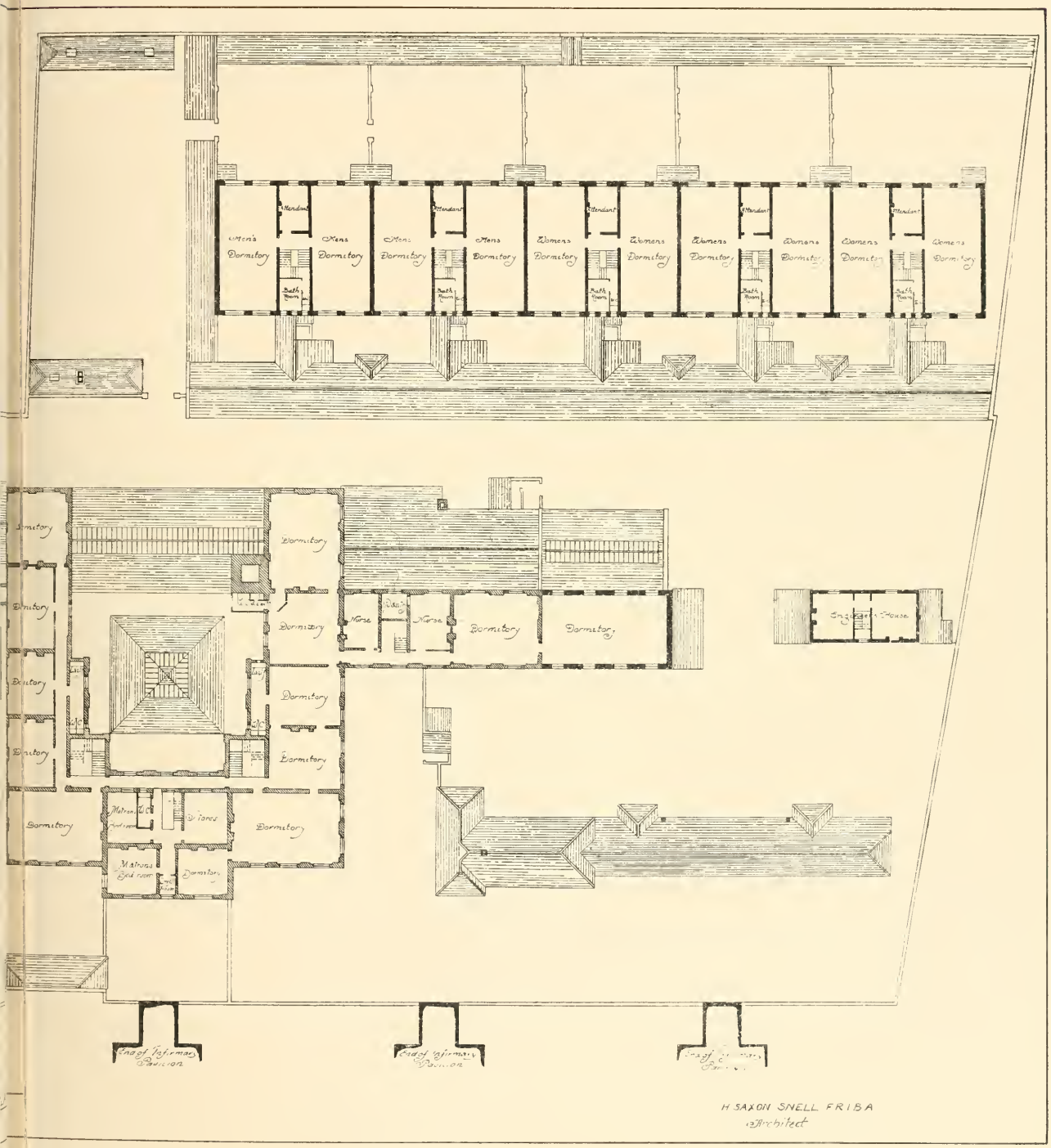


Longitudinal Section thro Chapel



SCALE OF 0 1 2 3 4 5 6 7 8 9 10 20 30 40 50 60 70 80 90 100 FEET

— FIRST · FLOOR · PLAN —



H SAXON SNELL FRIBA
Architect

Metropolitan Convalescent Institution.

CHILDREN'S BRANCH—KINGSTON HILL, NORBITON, SURREY.

THIS BUILDING, erected for the reception of 150 Convalescent Children of both sexes, was opened by their Royal Highnesses the Prince and Princess of Wales, on the 12th July 1875. The area of the site, including yards and playgrounds, is about two and three-quarters acres.

The general planning of the main building is reported to be well suited to the purposes for which it was designed. It is found, however, that the present arrangement, by which the Girls dine first and the Boys afterwards, does not work well in practice, and it is intended, therefore, to so enlarge the Dining Hall that the whole of the children can be accommodated in it at one time.

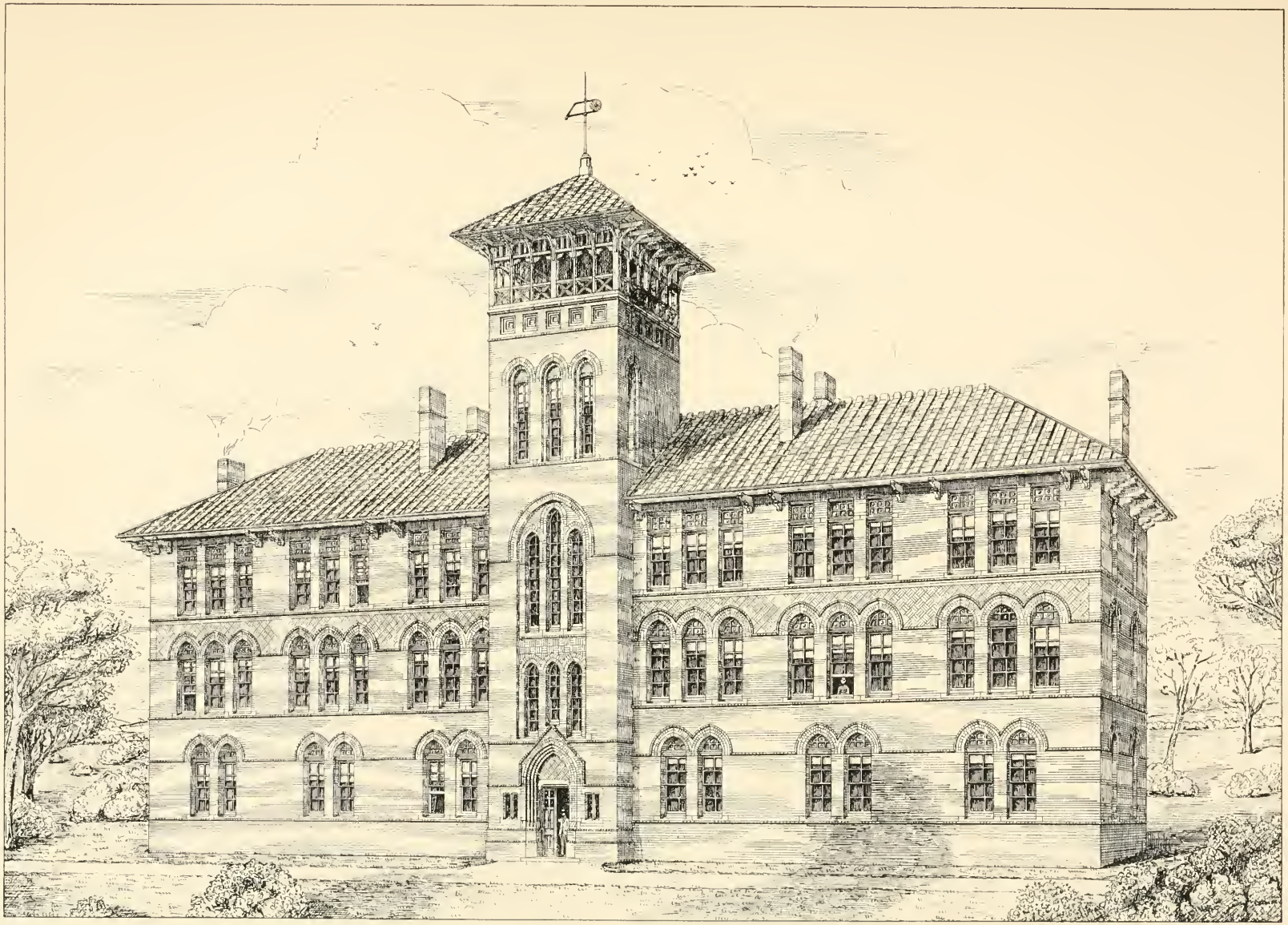
Lavatory Basins are at present placed in the Dormitories, as shewn upon the plans, but this arrangement is not found to work satisfactorily, and the Basins are consequently to be removed to Lavatories which are to be erected on the ground floor adjoining the Day Room Porches.

It will be seen that the general arrangement of the Dormitories and Day Rooms is such that they can at all times be overlooked from the Matrons' and Officers' Rooms.

With regard to the general arrangement of the Administrative Department, it should be observed that all clothes-washing and some of the house work is done by persons living off the premises; and, therefore, it was unnecessary to provide for the accommodation of a large staff of resident Officers.

The building provides the following accommodation, viz :—

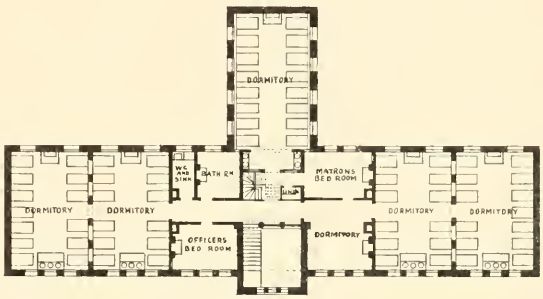
	Area in ft.
4 Dormitories, each for 25 beds, and each	1,008
2 Dormitories, each for 16 beds, and each	632
2 Dormitories, each for 6 Beds, and each	250
2 Bath Rooms ... ... each	106
3 w.c.'s, 3 Sinks, 3 Linen Closets, &c.	
Contagious Ward	196
Bath Room and w.c. adjoining ...	64
Boys' and Girls' Day Rooms, each	1,008
Dining Hall	621
7 w.c.'s, 3 Urinals.	
Administrative Offices :	
Gardener's Living Room	168
,, Kitchen	75
,, Bed Room	132
,, w.c., Coals, Pantry, &c.	
Entrance Hall and Staircase ...	294
Visitors' Room	104
Matron's Office	102
,, Sitting Room (this is wrongly marked on plan "Cripples' Dormitory")	162
2 Bed Rooms ... ... each	166
2 Officers' Rooms ... ... ,,	166
Kitchen	456
Scullery	93
Store Rooms and Larders, &c. ...	259
2 Coal Cellars ... ... each	56
Servants' w.c., Sink, &c.	



METROPOLITAN CONVALESCENT INSTITUTION

CHILDRENS HOME AT NORBITON

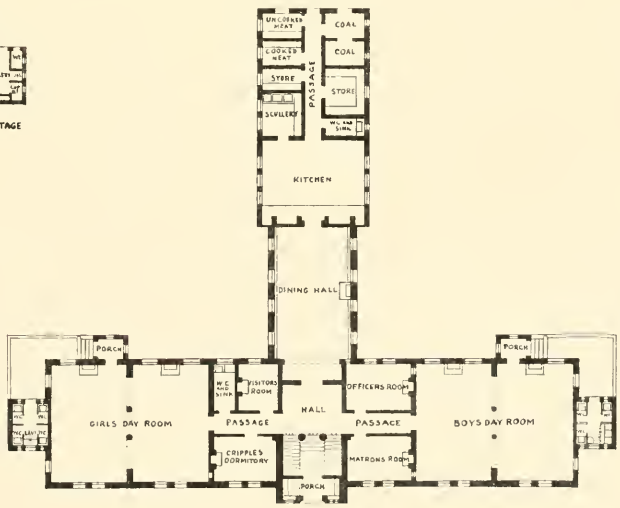
THIRD FLOOR PLAN



SECOND FLOOR PLAN

FIRST FLOOR PLAN

GARDENERS COTTAGE



GROUND FLOOR PLAN

H SAXON SNELL FRIBA ARCHT.

Photo-Lithographed & Printed by James Akerman, 6, Queen Square W.C

Casual Wards—St. Olave's Union.

LOWER DEPTFORD ROAD, ROTHERHITHE, LONDON, S.E.

THIS BUILDING is erected for the nightly reception of 40 Men and 16 Women and Children. It is designed on what is called the "Cellular" system, the object being the entire separation of the Inmates from each other from the time they enter to the time they leave the building.

This was the first building of the kind erected, and the Local Government Board have recommended all Guardians to adopt the details and general arrangement of the Cells, as shewn in this design, in any future buildings erected by them.

Each Male Casual before leaving in the morning is compelled to break a certain quantity of granite into pieces of a given size; and the Working Cells as here designed are consequently provided with grated openings through which all the pieces of stone so broken must be passed before the Inmate is permitted to take his discharge.

The Females are generally employed to clean the building, but otherwise they have to pick a certain quantity of oakum before leaving in the morning, and this they do in their Sleeping Cells.

All the Sleeping Cells are heated by hot-water pipes, which pass from the basement round the entire building, and they are each provided with a night commode, so that w.c.'s are only requisite for the attendants and others employed about the house.

In any similar building where the area will permit it, it would be better to provide larger Waiting Rooms for the two sexes; the Attendants' Rooms should also be larger; and, according to the prescribed rules laid down by the Local Government Board, Baths should be provided at the rate of one to every seven or eight vagrants. It is a question, however, whether so large a provision as this is either necessary or desirable, especially where the Waiting Rooms are of ample size. A Store Room for oakum should also be added.

The site, including a Cart Road 14 feet wide surrounding the building for the collection and delivery of stones, is 4,305 superficial feet.

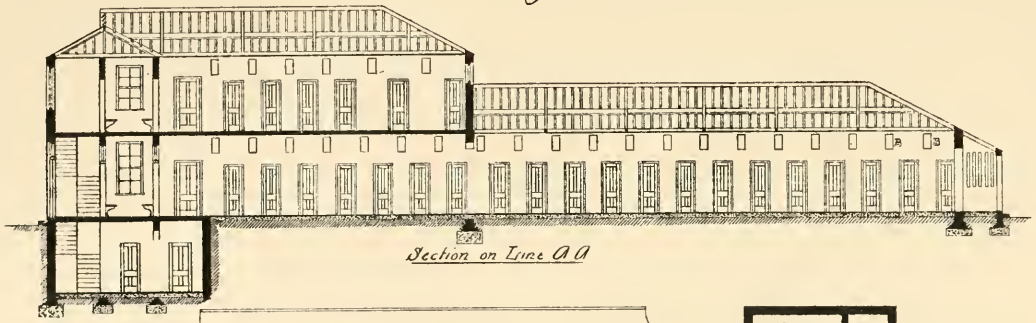
The following accommodation is provided, viz.:—

	Area in ft.
Waiting Room for Men	100
,, ,, Women ...	100
40 Sleeping Cells, each for one Male Inmate, and each	36
40 Working Cells adjoining ...	24
8 Cells, each for one Female Inmate, and each	36
8 Cells, each for one Female Inmate with Children, and each ...	56

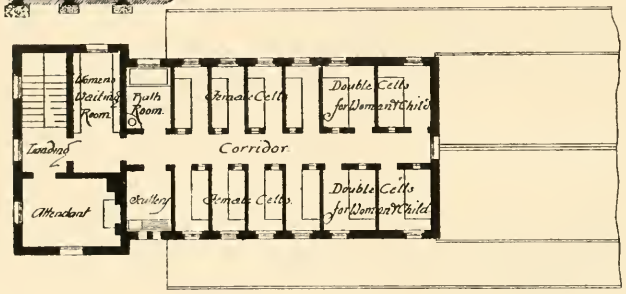
	Area in ft.
2 Bath Rooms for Men, and each...	48
1 Bath Room for Women ...	48
Men's Scullery for emptying and washing night commodes ...	67
Women's Scullery for ditto ...	48
Superintendent's Sitting Room ...	111
,, Bed ,, ...	111

	Area in ft
Superintendent's Kitchen, and for making Casuals' gruel	108
Bread Store	63
1 Coal Cellar, and Furnace Room each...	78
Disinfecting Room	28
w.c.'s, Urinals, &c.	

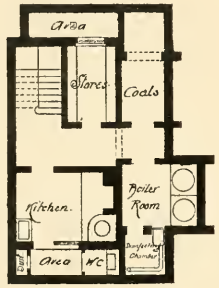
Casual Wards for St Olaves Union - Deptford Lower Road Rotherhithe



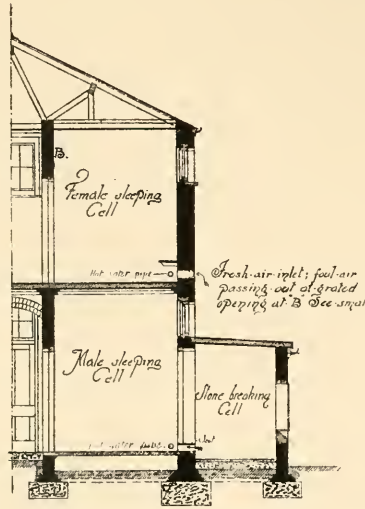
Section on Line A A



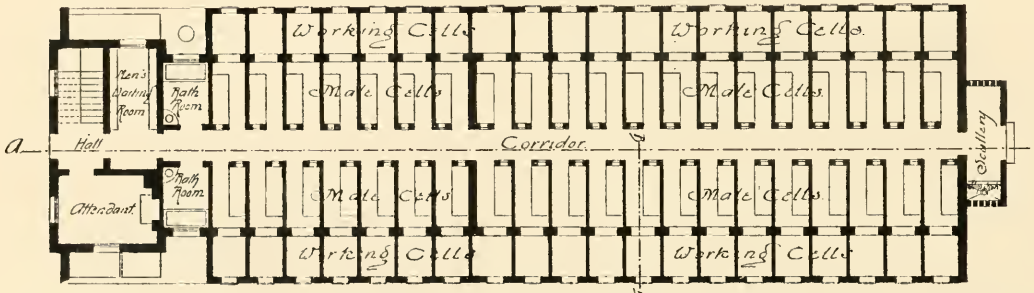
Plan of First Floor shewing Female Cells



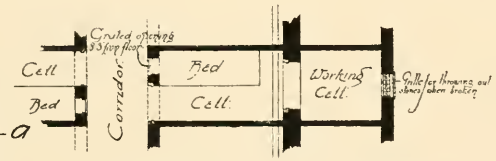
Plan of Basement


B
Female sleeping Cell
Fresh-air inlet; foul-air passing out at grated openings at B See small Section
Male sleeping Cell
Stone breaking Cell

Detail Section on Line B B



Plan of Ground Floor shewing Male Cells



Detail Plan of Male Cell Ground Floor

Scale to Plans etc

Scale to Detail Plan etc

H. Saxon Snell FRIBA
Architect
22 Southampton Buildings
WC

Casual Wards—St. Marylebone.

DAVID STREET, BAKER STREET, LONDON, W.

THIS BUILDING is erected for the nightly reception of 65 Men and 32 Women and Children, and it affords another example of the "Cellular" system of construction, but, unlike the St. Olave's Union Casual Wards, no provision is made for stone-breaking, and therefore, as the morning task for all the inmates, both male and female, consists simply in picking a certain amount of oakum, no working Cells were necessary. The Cells in this building are somewhat larger than those at St. Olave's, and the provision of Bath Rooms, Waiting Rooms, and the Administrative Department generally is much more ample. All the Cells and the Staircases are heated by hot-water pipes, which circulate throughout every part of the building. The site, including yards, is 8,190 superficial feet.

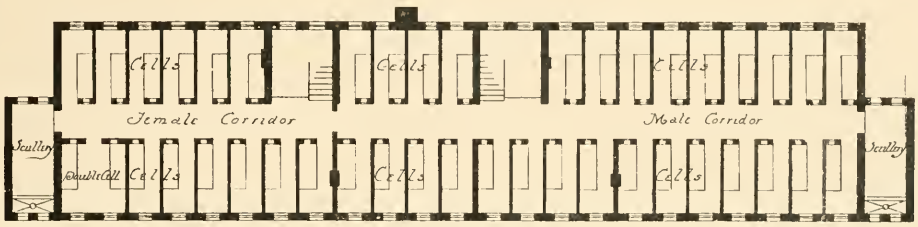
The accommodation is as follows, viz. :—

	Area in ft.
Waiting Shed for Males who come before the prescribed hour for admission	577
Ditto for Females	175
2 Waiting Rooms for Males and Females, and each	231
Office	110
65 Cells, each for one Male, and generally each	45
26 Cells, each for one Female, and generally each	45

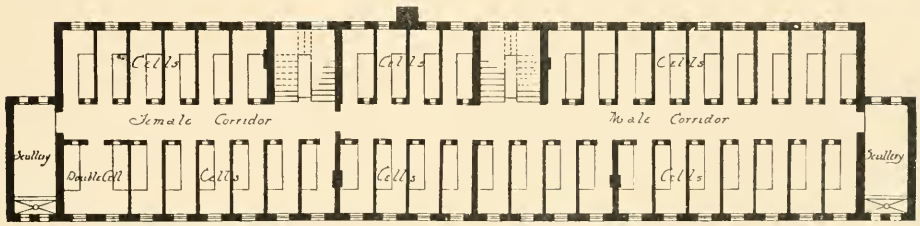
	Area in ft.
3 Cells, each for one Female, with Child ... ... and each	94
3 Bath Rooms for Males ... ,,	60
2 ,, ,, for Females... ,,	68
6 Sculleries for emptying and washing night commodes ... each	95
Superintendent's Living Room ...	189
,, Bed Room ...	185
,, Kitchen, and for making inmates' gruel	189

	Area in ft.
2 Attendant's Rooms ... each	140
Bread Store	78
Oakum Store in Basement	280
Coal Cellars ditto	298
Disinfecting Chamber in Basement	44
Room for drying Inmates' wet Clothes in Basement	80
Furnace Room in Basement ...	87
w.c.'s, Urinals, &c. for the use of those employed about the premises.	

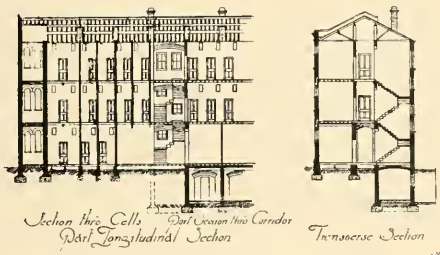
St Marylebone Workhouse
New Casual Wards



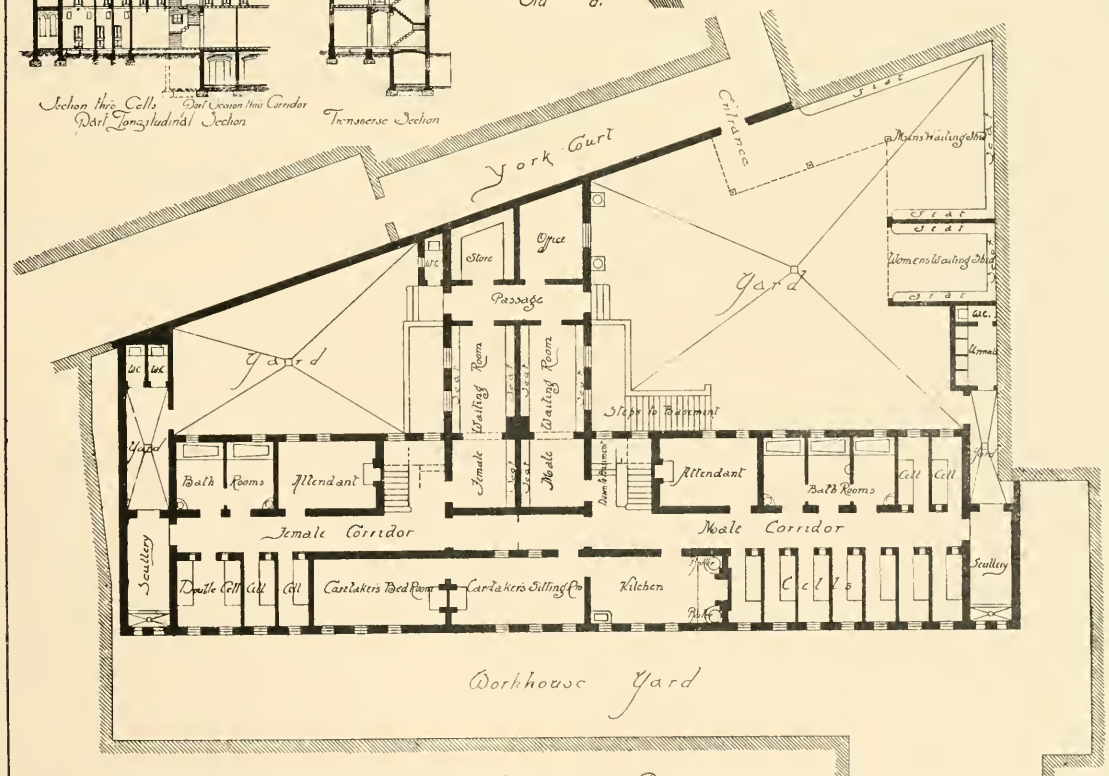
Second Floor Plan



First Floor Plan



Note. New portions
Old do



Ground Floor Plan

Scale 0 10 20 30 40 50 Feet

A Saxon Snell A.R.I.B.A. Architect

Lodgings for Houseless Poor.

NIŻNY-NOVGOROD-ON-VOLGA.

THIS BUILDING was designed for M. Ragosine, a large employer of labour in the Russian Empire, and the plan would, with very few modifications, be excellently adapted for a Metropolitan Casual Ward.

The Building provides the following accommodation, viz. :—

	Area in ft.
74 Cells, each for one Male, and each	45
26 Cells, each for one Female, and each	45
Waiting Room for Males	752
,, ,, Females ...	557
Office	150
Bath Room and Lavatory for Males	150
Bath Room and Lavatory for Females	100
Space for 3 Earth Closets for Males and 3 for Females.	
Room for Drying the Clothing of Males, and containing Disinfecting Chamber	150
Room for Drying the Clothing of Females, and containing Disinfecting Chamber	97
Superintendent's Living Room ...	156
,, Bed ,, ...	120
Furnace and Fuel Room in Basement	300
Store Room	150

N.B.—It should be observed that the scales to the general plan are wrongly drawn. Every four feet indicated by these scales should really indicate three feet.

Lodgings for Houseless Poor

to be erected at

Nijny-Novgorod-on-Volga.

Russian Empire

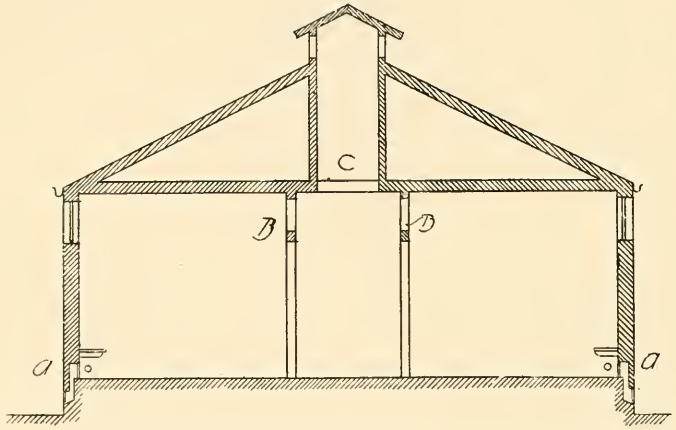
for M. Ragosine.

Note Dotted lines shew pipes containing water heated by a Furnace in Basement.

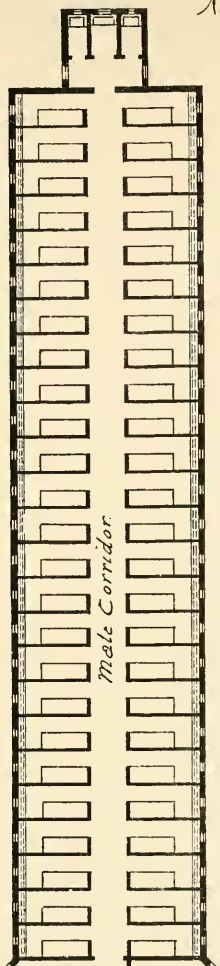
The ventilation during night is effected by external cold air entering at A and passing over the hot water pipes then out at the grated opening at B and into the ventilating shaft at C.

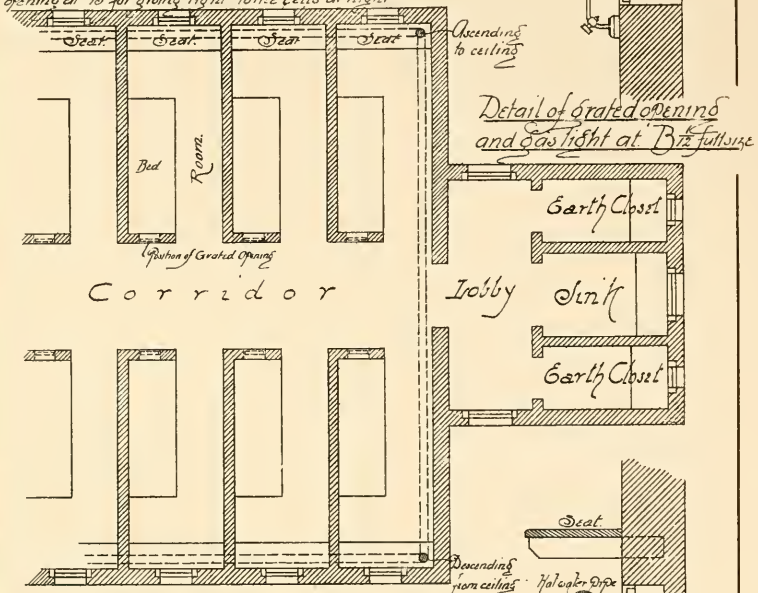
During the daytime the doors and windows of the cells are thrown open and cross ventilation effected from window to window.

A Gas-burner is placed in the Corridor opposite each Grated opening at B for giving light to the cells at night



Section.

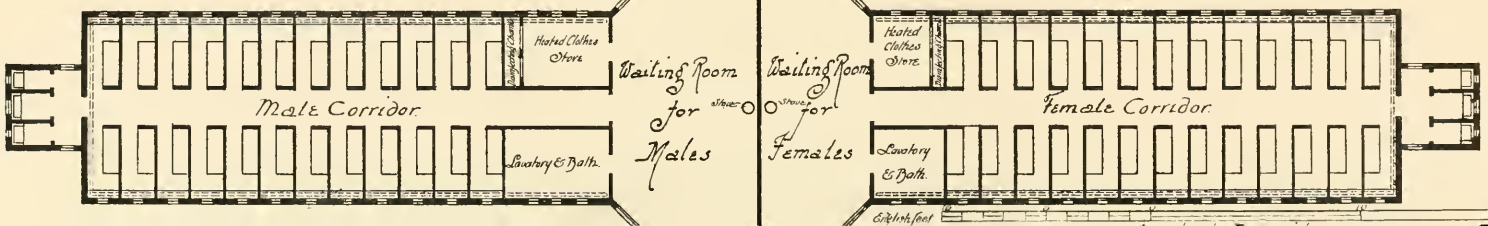




Part Detail Plan

Detail of grated opening and Gas light at B full size

Detail of Inlet for fresh air at A full size



St. Marylebone Temporary Casual Wards.

NORTHUMBERLAND STREET, LONDON, W.

THESE WARDS were erected in the year 1867 before the Cellular system came into vogue. The materials employed in their construction were principally wood and iron, and the building generally was of a temporary character. The site being surrounded by high buildings, and the superficial extent (6,890 feet) being small, some difficulty was experienced in arranging for the proper ventilation of the various rooms; but by the introduction of underground fresh air ducts, this was satisfactorily accomplished, and in the result the building was at the time (1867) pronounced to be one of the best-arranged Casual Wards in London. The Wards were heated by hot-water circulating pipes running down a channel sunk in the centre of each Ward.

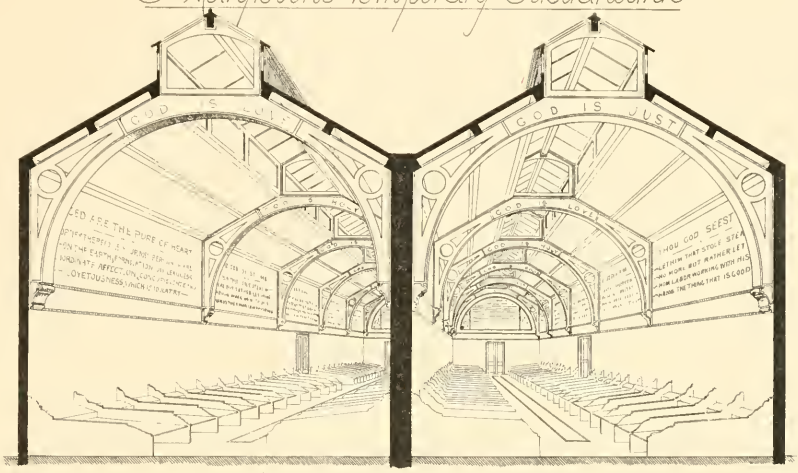
The accommodation provided was as follows, viz.:—

	Area in ft.
General Waiting Room	235
Female ,, ,, ...	81
Bath Room for Men	117
,, ,, ,, Women	108
Dormitory for 49 Men	1,044

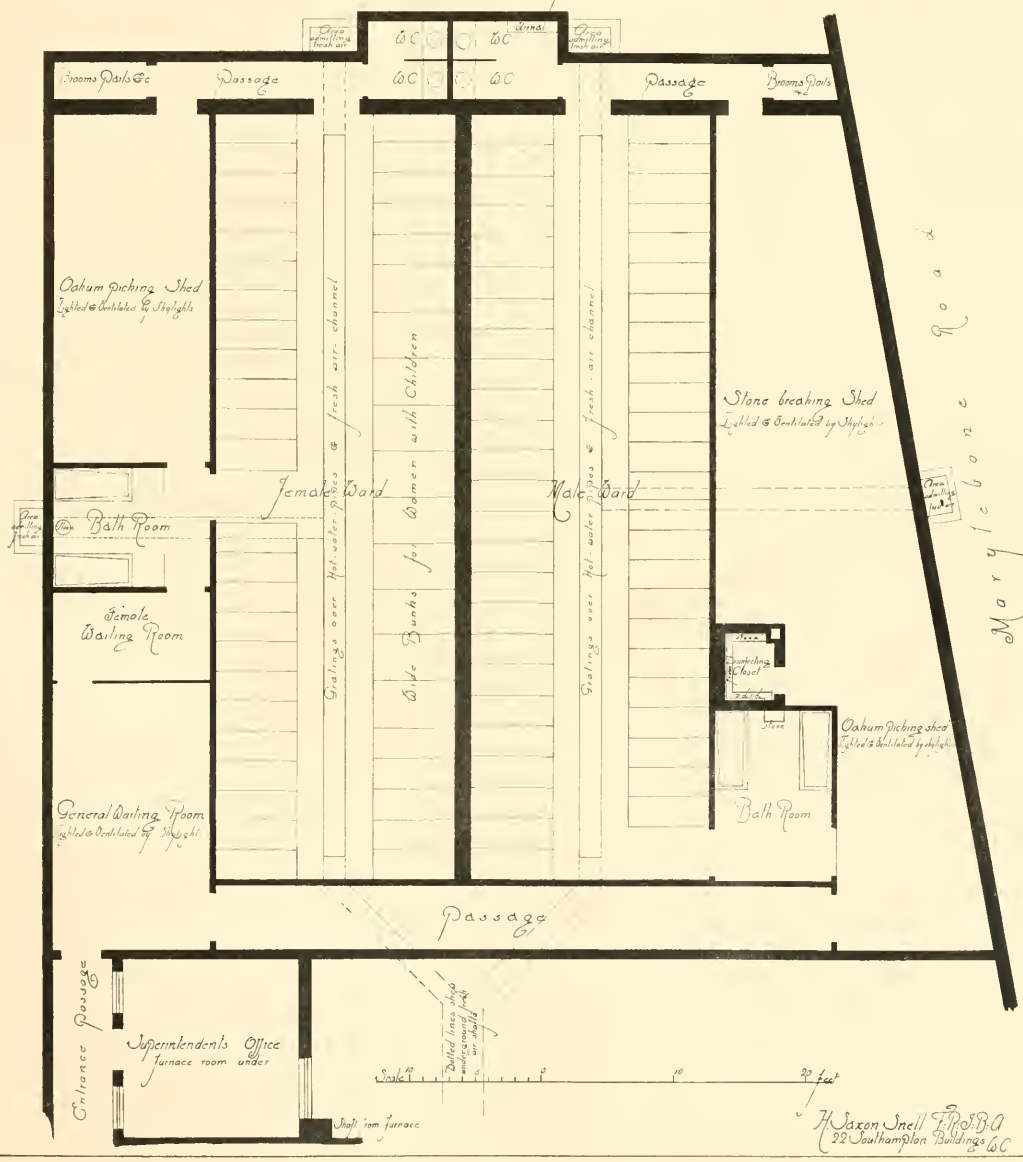
	Area in ft.
Dormitory for 44 Women and 10 Children	1,044
Oakum-picking and Stone-breaking Sheds for Males	756
Oakum-picking Shed for Females	315

	Area in ft.
Superintendent's Office	178
Disinfecting Closet	23
Furnace Room and Coal Store ...	178
4 w.c.'s, Urinals, &c., &c.	

St Marylebone temporary Casual Wards



Interior View of Wards



H. Saxon Snell F.R.I.B.A.
22 Southampton Buildings W.C.

Photo Lithographed & Printed by James Akerman 6 Queen Square, W.C.

Royal Commission of the Patriotic Fund Boys' School.

WANDSWORTH COMMON, LONDON, S.W.

PROVISION is made in this establishment for the maintenance and education of 180 Boys, being the Children of Soldiers who fell in the Crimean and other Wars. Additional Infirmary accommodation is provided for 14. It was opened by the Royal Commissioners without ceremony A.D. 1872.

According to the original design the School and Play Rooms were to be situated in a wing building having windows on either side for cross ventilation, and this would have been better than the present arrangement; otherwise, the building is reported to be well-planned and suitable for the purposes for which it was designed.

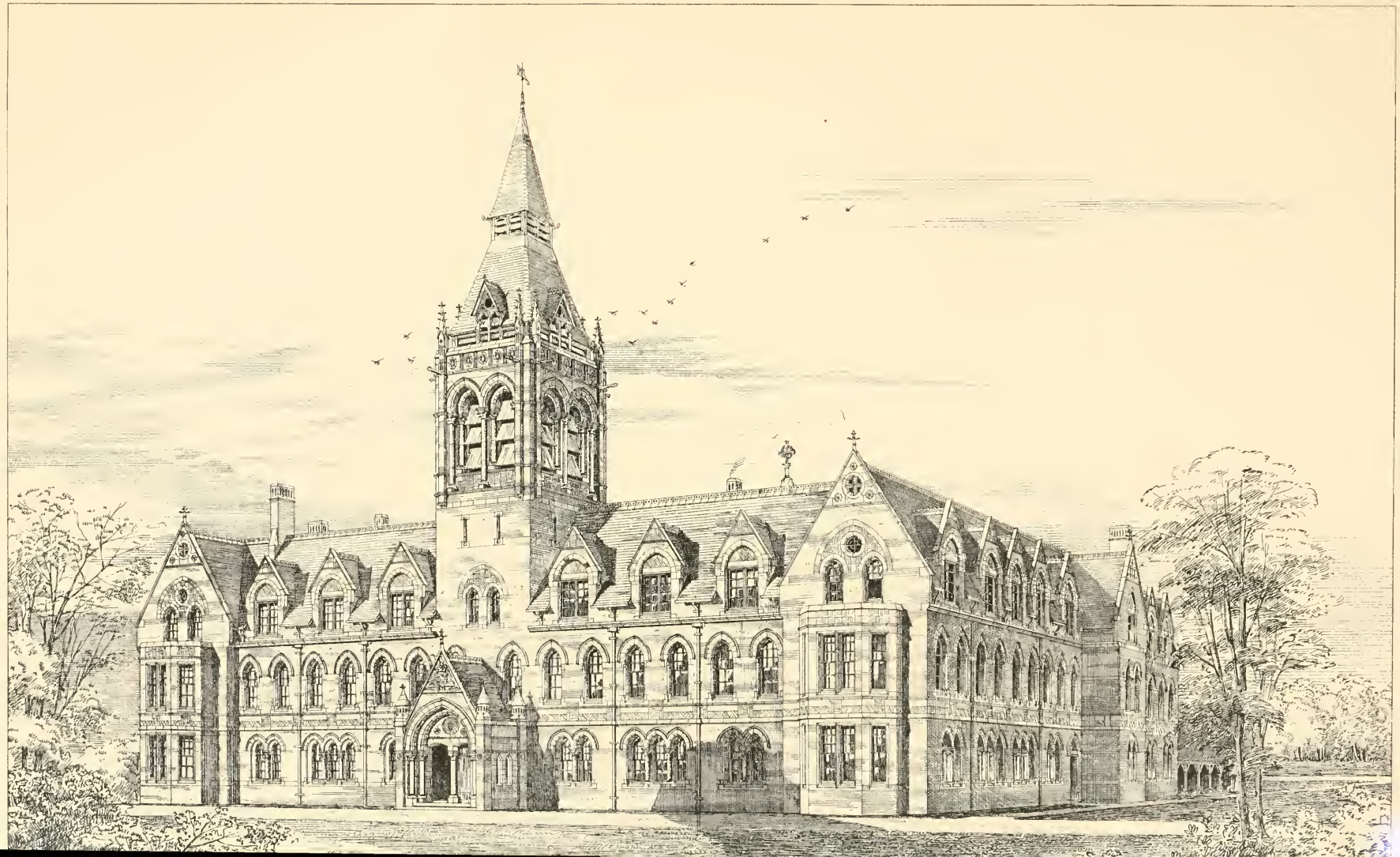
The area of the site, including Play Grounds, Cricket Field, &c., is about twelve acres.

The building provides the following accommodation, viz. :—

	Area in ft.
2 Dormitories on first and second floors, each for 28 Beds, and each	1,496
2 Dormitories on first and second floors, each for 22 Beds, and each	1,197
4 Dormitories on first and second floors, each for 20 Beds, and each	1,008
4 Pupil Teacher's Rooms ,,	44
2 Housemaid's Closets ,,	73
w.c.'s on each floor.	
School Room	1,506
2 Class Rooms ... ... each	323
School Library	156
Pupil Teacher's Day Room ...	160
Play Room	1,140
Play Shed	1,440
Lavatory and Swimming Bath ...	1,680
2 Warm Bath Rooms ... each	65
Earth Closets and Urinals	347
ADMINISTRATIVE OFFICES:	
Entrance Hall	196
Porter's Office	125
Chapel with Sanctuary, Organ, and Vestry	1,800
Dining Hall	1,800
Serving Room	375
Knife and Washing-up Room ...	91

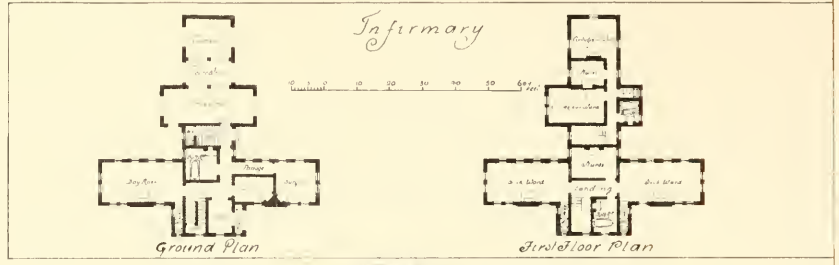
	Area in ft.
Committee Room	426
,, ,, w.c., Lavatory, &c.	90
Strong Room	48
Superintendent's Office	243
,, Drawing Room ...	399
,, Dining Room ...	377
,, Pantry	98
,, Bed Room ...	233
,, ,, ...	329
,, Dressing Room ...	111
,, Bath Room ...	74
,, w.c., Linen Closet, &c.	
Schoolmaster's Sitting Room ...	220
,, Dining Room ...	171
,, Two Bed Rooms, each	226
5 Officer's Bed Rooms, each average	100
Kitchen	600
Scullery	260
Servants' Hall	240
,, Lavatory and w.c.	69
Needlework Room	262
Wardrobe or Boys' Clothes Room	353
Store Rooms, Larders, &c. (part in Basement)	2,675
Coal Store	650

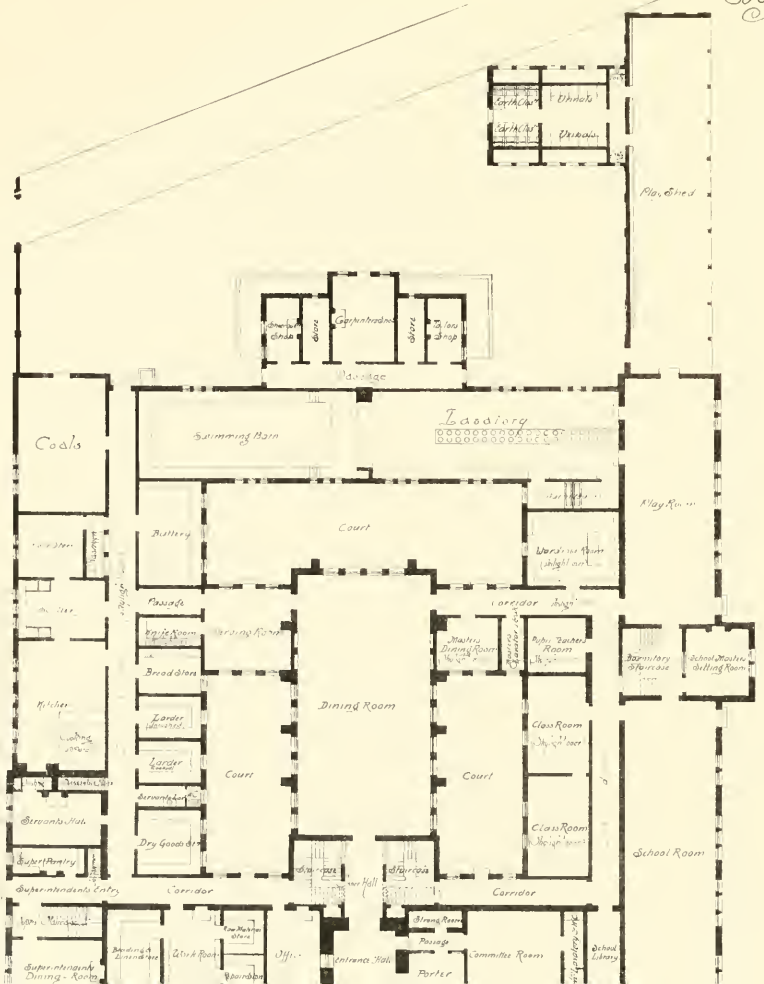
	Area in ft.
Carpenter's Shop	280
Shoemaker's & Tailor's Shops, each	280
Furnace Room for Heating Bath, Dining Hall, Chapel, Dormitories, Play and School Rooms ...	361
Furnace Coal Store	376
All Laundry Work is done at the Girls' School situate on adjoining ground.	
INFIRMARY:	
2 Wards, each for 5 Beds, and each	300
Bath Room	73
,, ...	93
Nurses' Room	95
,, ,, ...	133
Day Room	350
Play Shed	572
w.c.'s, Slop Sink, &c.	
1 Ward for 2 Infectious cases ...	179
1 ,, 2 ,, ,, ...	168
1 Bath Room for Infectious cases ...	41
1 Nurse's Room for Infectious cases	80
w.c.'s, Slop Sink, &c., for ditto.	
Entrance Hall	73
Surgery	146
Coal Store	14

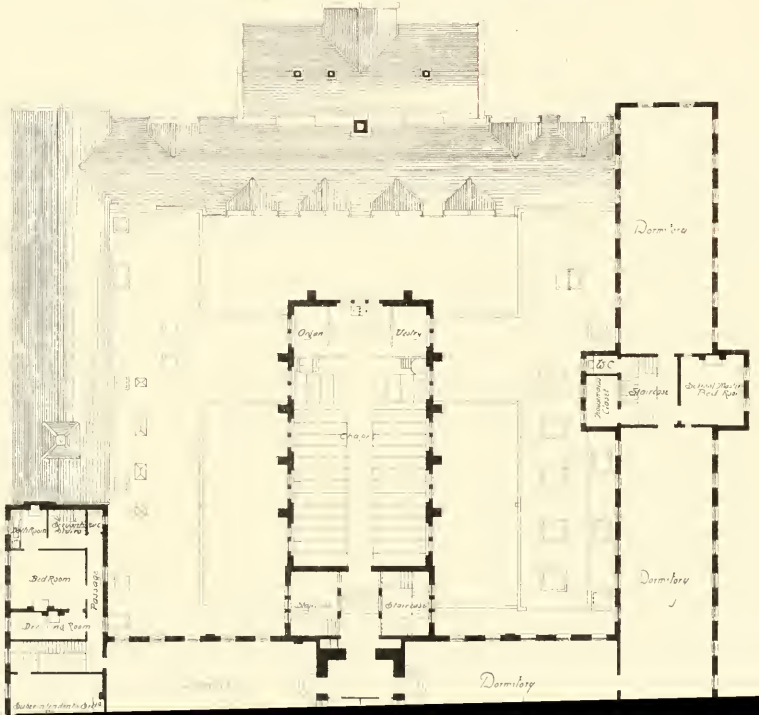


Royal Commission of the Patriotic Fund

Boys School





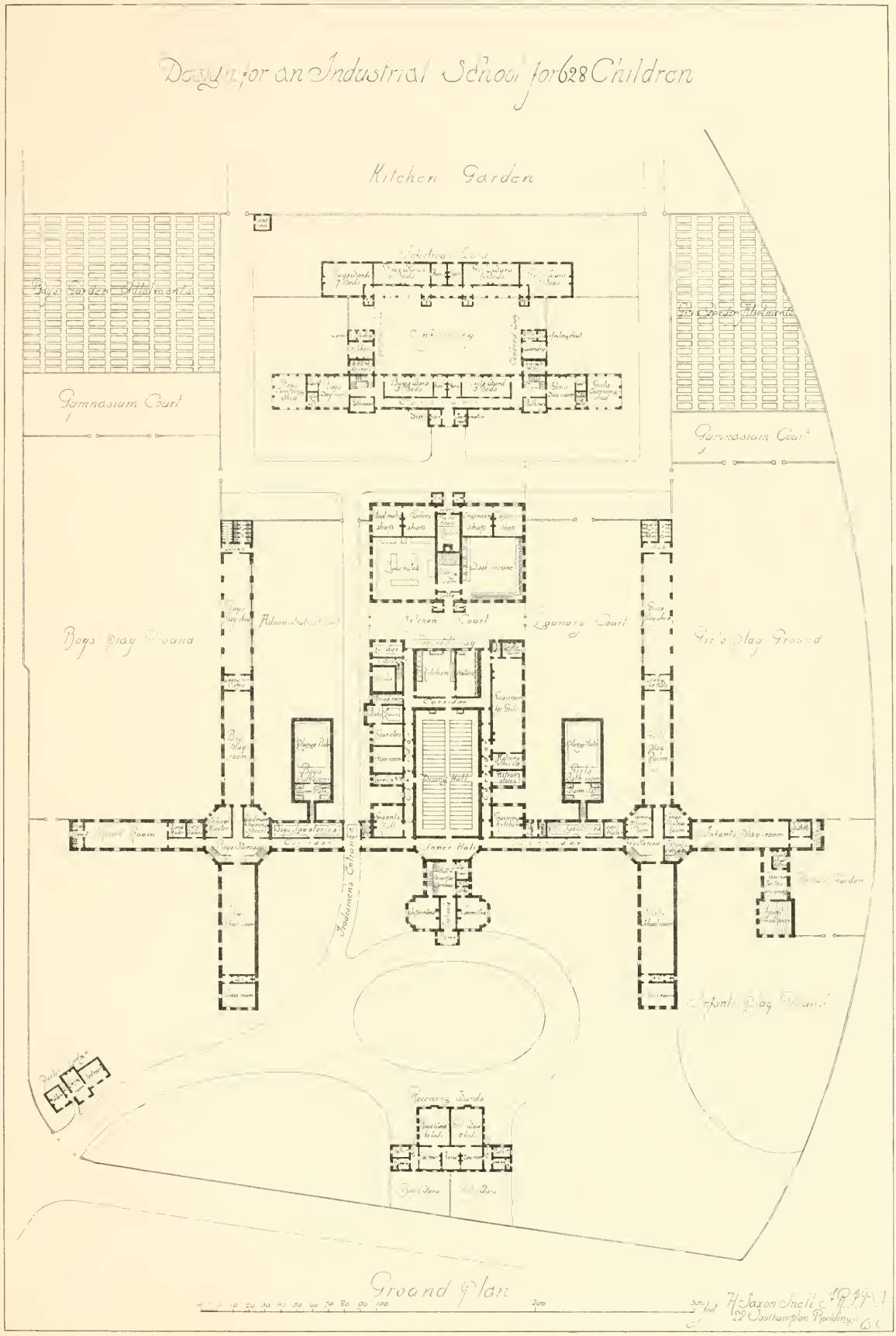


Design for an Industrial School for 628 Children.

THIS DESIGN was originally prepared for the Board of Managers of the Finsbury District School, whose powers were subsequently delegated to the Board of Guardians of the Holborn Union. It was intended to be erected upon ground situated at Upton, Essex, and provision was made for the board, maintenance, and education of 470 Pauper Children of both sexes; 158 Infants, and, in addition, accommodation in the Infirmary for 100, and in Receiving Wards for 20. The area of the site is about nine and a-quarter acres.

The following is the accommodation provided by the plans, viz.:—

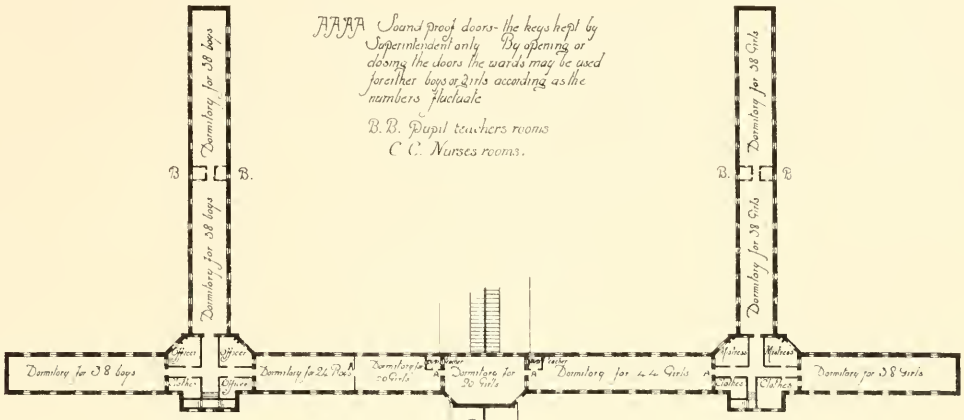
	Area in ft.
Main Building (Boys):	
6 Dormitories, each for 38 beds, and each	1,368
1 ,, ,, 24 ,, ,,	882
1 ,, ,, 6 ,, ,,	230
4 ,, ,, 1 Pupil Teacher, and each	51
3 Linen Closets, average each ...	100
w.c., Slop Sink, &c., on each floor.	
School Room	1,450
Class Room	327
Pupil Teacher's Room	100
Play Room	1,247
Play Shed	1,361
Band Room	900
Lavatory	453
Swimming Bath and Warm Baths	1,252
Lobby for Hats, &c.	175
w.c.'s, Urinals, &c., at ends of Play Sheds.	
Main Building (Girls):	
3 Dormitories, each for 38 beds, and each	1,368
1 ,, ,, 44 ,,	1,620
1 ,, ,, 20 ,,	904
1 ,, ,, 20 ,,	738
1 ,, ,, 6 ,,	230
4 Dormitories, each for 1 Pupil Teacher, and each	51
2 Linen Closets, average	160
School Room	1,450
Class Room	327
Training Kitchen	400
,, ,, Larder and Scullery	230
Needle Room	1,200
Pupil Teacher's Room	103
Play Room	1,247
Play Shed	1,361
Lavatory	370
Swimming and Warm Baths ...	1,242
Lobby for Hats	175
w.c.'s, &c., at ends of Play Shed.	
Main Building (Infants):	
3 Dormitories, each for 38 Infants, and each	1,368
1 Dormitory, for 44 Infants ...	1,620
2 Linen Closets, average ... each	70
School Room	484
Class ,, for the very young ...	295
Play ,, ...	1,054
Lavatory	178
w.c.'s, &c.	
Administrative Offices:	
Porter's Lodge, Living Room ...	209
,, Bed ,, ...	168
,, Kitchen	114
,, w.c., &c.	
2 Receiving Ward Dormitories, each for 10 Beds, and each	480
2 Receiving Ward Day Rooms, each	196
2 ,, ,, Bath Rooms, ,,	70
1 ,, ,, Nurse's Room ...	158
2 w.c.'s, Lavatory, &c. ... each	70
Vestibule	200
Hall and Principal Staircase ...	360
Inner Hall	485
Waiting and Visitors' Room ...	101
Superintendent's Office	69
Dining Hall, and for use as Chapel	3,200
,, Gallery for Officers and Visitors	716
Committee Room	354
Board Room	810
,, Waiting Room ...	132
,, w.c. and Lavatory. .	51
Superintendent's Sitting Room ...	358
,, Bed ,, ...	225
,, ,, ,, ...	138
School Master's Sitting Room ...	290
2 ,, ,, Bed ,, each	213
School Mistresses' Sitting Room ..	290
2 ,, ,, Bed ,, each	213
Infant School ,, Sitting Room ...	130
,, ,, Bed ,, ...	213
,, ,, Nurses' Rooms	213
2 ,, ,, ,, ,, each	51
Band Master's Room	129
Boys' and Girls' Training Officers' Rooms ... ... each	290
Needle Mistresses' Room	146
6 Servants' and Officers' Bed Rooms, average each	135
2 Servants' and Officers' Bed Rooms, average each	213
Kitchen	750
Bakehouse and Oven	250
Scullery	450
Servants' Hall	400
Spare Room	340
Servants' Lavatory and w.c.'s ...	138
Store Rooms, Larders, &c. (part in basement)	3,000
Coal Cellars (part in basement) ...	1,200
Laundry and Workshops:	
Wash-house	1,600
Drying Room and Horses	348
Ironing, Folding, and Delivery Room	1,600
Carpenter's, Boot-maker's, Tailor's, and Engineer's Shops ... each	392
Engine and Boiler Rooms ,,	356
w.c.'s, Urinals, &c.	
Infirmary:	
4 Wards, each for 16 Beds, and each	950
2 ,, 5 ,, ,,	401
All these Wards have attached to them w.c.'s, Sinks, &c.	
2 Day Rooms ... ... each	395
2 Exercise Sheds ... ... ,,	395
2 Bath Rooms ... ... ,,	131
2 ,, ,, ... ,,	66
Medical Officer's Examination Rooms and Dispensary, ... each	80
2 Nurses' ,, ... ,,	139
2 ,, ,, ... ,,	128
2 Linen Closets ... ... ,,	52
2 Wards, each for 6 Infectious cases each	520
2 ,, for 7 ,, ,,	661
1 Nurses' Room for ,, ,,	139
Bath ,, ,, ,, ,,	130
w.c.'s, Lavatories, &c.	
Kitchen	180
Scullery	67
Larder	37
Laundry	180
Foul Linen Room	70
Disinfecting Closet	34


Design for an Industrial School for 628 Children
Kitchen Garden
Gymnasium Court
Gymnasium Court
Boys Play Ground
Girl's Play Ground
Kitchen Court
Laundry Court
Inner Hall
Ground Plan

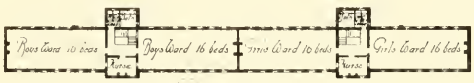
Design for an Industrial School for 628 Children

AAAA Sound proof doors- the keys kept by Superintendent only By opening or closing the doors the wards may be used for either boys or girls according as the numbers fluctuate

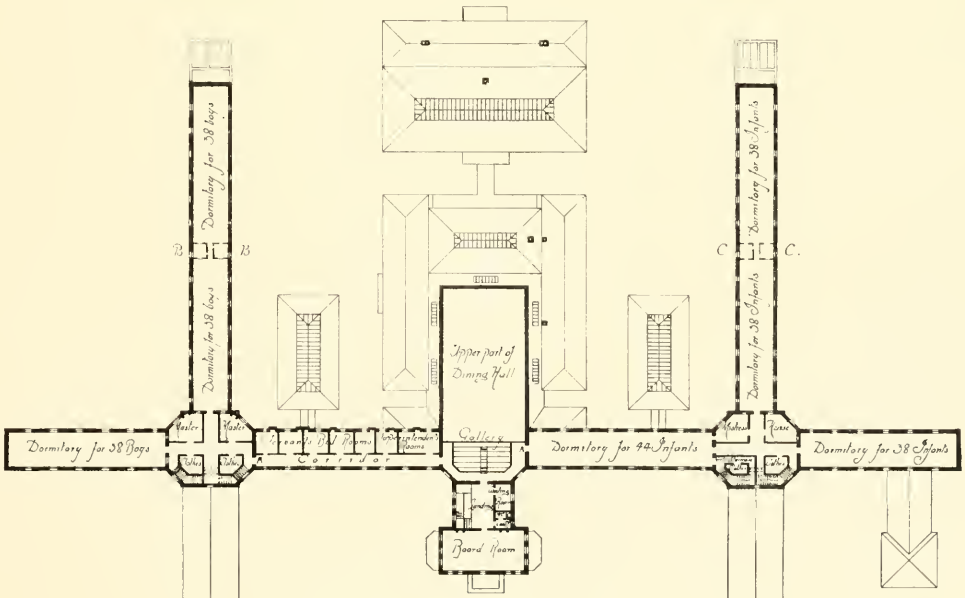
B.B. Pupil teachers rooms
C C. Nurses rooms.



Second Floor Plan

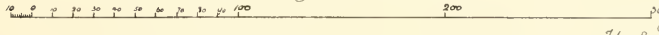


First Floor Plan of Infirmary



AA. Sound proof doors. the keys being kept only by the Superintendent

First Floor Plan



H Saxon Snell F.R.I.B.A.
22 Southampton Buildings

Kensington District Schools.

THIS DESIGN was selected by the Board of Managers of the Kensington District School for erection at Ashford, Middlesex, but that Board was subsequently dissolved by Act of Parliament, and the building has, consequently, not been erected.

It is much to be regretted that this was so, as the scheme had for its object the carrying out a much-needed reform in the management of Pauper Schools, by a provision for the separation of children, who almost from their infancy are entirely brought up in these establishments, from those who spend half their childhood there at irregular intervals and the other half in the streets and alleys of the towns in which their parents reside. The evils resulting from the admixture of these two classes was commented upon by the author in a letter to the *Times* upon the spread of ophthalmia in Pauper Schools, of which the following is an extract:—

"Excepting in isolated cases, the disease ophthalmia is confined almost exclusively to pauper children, brought together from the various slums of our city, and who have been bred in foul air. Their food is scanty, and consequently their unnourished bodies are especially susceptible to this and other contagious diseases. It is communicated, I believe, principally in the dormitories and lavatories of the schools where the towels and bed linen are intermixed, and this may account for the disease not shewing itself in its huge proportions in the Courts from which the pauper children emanate, separated as they are to a greater or less extent in their various domiciles.

"The disease would soon die out in pauper schools from the greater vigour imparted to the children's constitutions by their improved dietary, and the beneficial effects of country air and exercise, but for one great oversight in the planning of these schools. I allude to the want of provision for a proper separation of the fluctuating portion of the school. Under the present regulations any parent may send his children to these schools or remove them at will, and, consequently, while the larger proportion of the children are more or less permanent inmates, there is a class who are constantly being withdrawn for shorter or longer periods, and subjected to the deteriorating influences of their alley homes, only to return into the schools to contaminate the permanent inmates, not merely by their impoverished blood, but with the vicious lessons picked up among their Arab friends. Every such building should have an entirely separate establishment for this class of inmates, and the result would be not only a decrease in the percentage of sickness, but the permanent or long resident children would more surely turn out better citizens and be less likely than at present to leave the school enamoured with the tinselled descriptions of London vice as communicated to them by (to their mind) their more fortunate and rollicking casual companions."

The general arrangement of the buildings is good, but there are matters of detail in this design that would require reconsideration if it were to be carried out. The Laundry would have been better if it had been arranged after the manner of the St. Olave's Union, or other of the Infirmary buildings illustrated in this work.

Provision was made in this design for the board, education, and maintenance of 400 pauper children of both sexes, and 92 infants—all being permanent inmates; also, 104 casual children of both sexes, besides accommodation in the Infirmary for 120, and in Receiving Wards for 24.

The area of the site was about thirty-eight and a-half acres, including farm.

The building provided the following accommodation, viz.:—

	Area in ft.
Main Building (Boys):	
4 Dormitories, each for 48 Beds, and each	1,780
N.B.—The partitions separating these Dormitories on each floor are (for the purpose of cross-ventilation) not intended to be carried up to the ceiling.	
4 Dormitories, each for 2 Pupil Teachers (marked on plan "Special") and each	192
2 Linen Closets ... ... each	40
w.c.'s, Sinks, &c. on each floor.	
School Room	2,184
Class Room	359
Assistant Master's and Pupil Teachers' Day Rooms ... each	175
Play Room	1,430
,, Shed	1,250
Band Room (forming part of Workshops)	896
Lavatory	1,043
Warm Bath Room	195
Plunge Bath Room	819
w.c.'s, Urinals, &c., at the end of Play Shed.	

	Area in ft.
Main Building (Girls):	
4 Dormitories, each for 48 Beds, and each	1,780
N.B.—The separating partitions are not carried up to ceiling.	
4 Dormitories, each for 2 Pupil Teachers, and each	192
w.c.'s, Slop Sinks, &c., on each floor.	
School Room	2,184
Class Room	359
Assistant Mistress and Pupil Teachers' Day Room	175
Training Kitchen	310
,, Scullery	104
,, Larder	48
Sewing and Mending Room ...	1,400
Play Room	1,430
,, Shed	1,250
Lavatory	1,043
Warm Bath Room	195
Plunge Bath Room	819
w.c.'s, &c., at end of Play Sheds	
2 Linen Closets ... ... each	96
Infants' School Building:	
4 Dormitories, each for 23 Beds, and each	873

	Area in ft.
N.B.—The separating partitions are not carried up to ceiling.	
2 Linen Closets ... ... each	96
w.c.'s, Slop Sinks, &c., on first floor.	
School Room	752
,, ,, for the very young ...	668
Play Room	912
Lavatory and Bath Room	468
,, ...	178
w.c.'s, &c.	
Casual School Building (Boys).	
2 Dormitories, each for 14 Beds, and each	416
2 Dormitories, each for 12 Beds, and each	368
Bath Room	108
Linen Closet	33
w.c., Slop Sink, &c., on first floor.	
School Room	752
Class Room	146
Play Room	752
,, Shed	800
Lavatory	147
Book Room	62
w.c.'s and Urinals at end of Play Shed.	

	Area in ft.
Casual School Building (Girls).	
The accommodation is similar to that for the Boys.	
Administrative Offices.	
Porter's Lodge Living Room ...	286
,, ,, Bed Room	132
,, ,, Kitchen	225
,, ,, Scullery	100
,, ,, Larder	64
,, ,, w.c., Coals, &c.	
2 Receiving Ward Waiting Rooms, each	99
2 ,, ,, Dormitories, each for 12 Beds, and each	512
2 Receiving Ward Day Rooms, each	176
2 ,, ,, Bath Rooms and Lavatories	147
1 Receiving Ward Linen Store ..	60
,, ,, Coal Store ...	60
w.c.'s, Urinals, &c.	
Vestibule	160
Entrance Hall	658
Waiting Room	144
2 Visitors' Rooms ... ... each	338
Superintendent's Office (marked on ground plan "Sitting Room")	341
Clerk's Office	190
Dining Hall	3,200
,, ,, for Casuals	800
Committee Room	783
,, ,, Lavatory, w.c., &c.	150
Superintendent's Drawing Room ..	484
,, Dining Room ...	218
,, 2 Bed Rooms, each	175
,, Kitchen, &c. ...	174
,, Bath Room ...	130
,, w.c., Linen Closet, &c.	
Matron's Drawing Room	484
,, Dining Room	218
,, 2 Bed Rooms ... each	175
,, Kitchen	174
,, Bath Room	130
,, w.c., Linen Closet, &c.	
School Master's Sitting Room (marked on ground plan "Head Master")	102
2 School Master's Bed Rooms, each	168
3 ,, ,, ,, ,, ,,	144
School Mistresses' Sitting Room ...	162
2 ,, ,, Bed Rooms ...	168
3 ,, ,, ,, ,, ...	144
Infant School Mistresses' Sitting Room	178
Infant School Mistresses' Bed Room	144
2 ,, ,, Nurses' Rooms, each	120
2 ,, ,, ,, ,, ,,	97
Casual School Master's Sitting Room	146
Casual School Master's Bed Room	90
,, ,, Male Officer's Room	90
,, ,, Mistresses' Sitting Room	146
,, ,, Mistresses' Bed Room	90
,, ,, Female Officer's Room	90
Chaplain's Room	144
Needle Mistresses' Room	208
Store Clerk's Room...	160
14 Additional Servants and Officer's Rooms, on second floor, average each	214
Officers' Bath Rooms, w.c.'s, &c.	
Kitchen	854
Scullery	308
Servants' Mess Room	400
Serving Rooms to Dining Hall ...	166
Cooks' Room	160
Store Rooms, Larders, &c. (part in Basement)	2,940
Coal Cellars (part in Basement) ...	1,150
Laundry and Workshops.	
Receiving, or Dirty Linen Room...	144
Washhouse	1,072
Drying Room	312
Ironing, Folding and Delivery Room	1,072
Laundresses' Room...	168
Carpenter's, Boot Maker's, Tailor's, Painter's, and Engineer's Shops, each	410
Boiler House and Engine Room (in Basement)	800
Furnace Coal Store (in Basement)	150
w.c.'s, Urinals, &c.	
Engineer's Living Room	210
2 ,, Bed Rooms	150
,, Kitchen	116
,, Pantry and Coal Cellar each	30
w.c.'s, &c., &c.	
Infirmary.	
6 Wards, each for 15 Beds, and each	990
4 ,, ,, 2 Special Cases, and each	140
All these Wards have attached to them w.c.'s, Sinks, &c.	
2 Day Rooms	280
2 Bath ,, ... each	154
2 ,, ,, ... ,,	125
2 Linen ,, ... ,,	91
2 Nurses ,, ... ,,	203
4 ,, ,, ... ,,	130
Medical Officers' Examination Room	96
Dispensary	96
2 Wards, each for 5 infectious cases, and each	440
2 Wards, each for 3 infectious cases, and each	255
1 Ward for 6 infectious cases ...	506
1 Bath Room for infectious cases	96
2 Nurses' Rooms for infectious cases ... ... each	128
w.c.'s, Sinks, Lavatories, &c., for infectious cases.	
Kitchen	130
Scullery	70
Larder	20
Washhouse	100
Foul Linen Room and Disinfecting Closet	85
Coal Store	55
Chapel	2,550
Vestry...	165

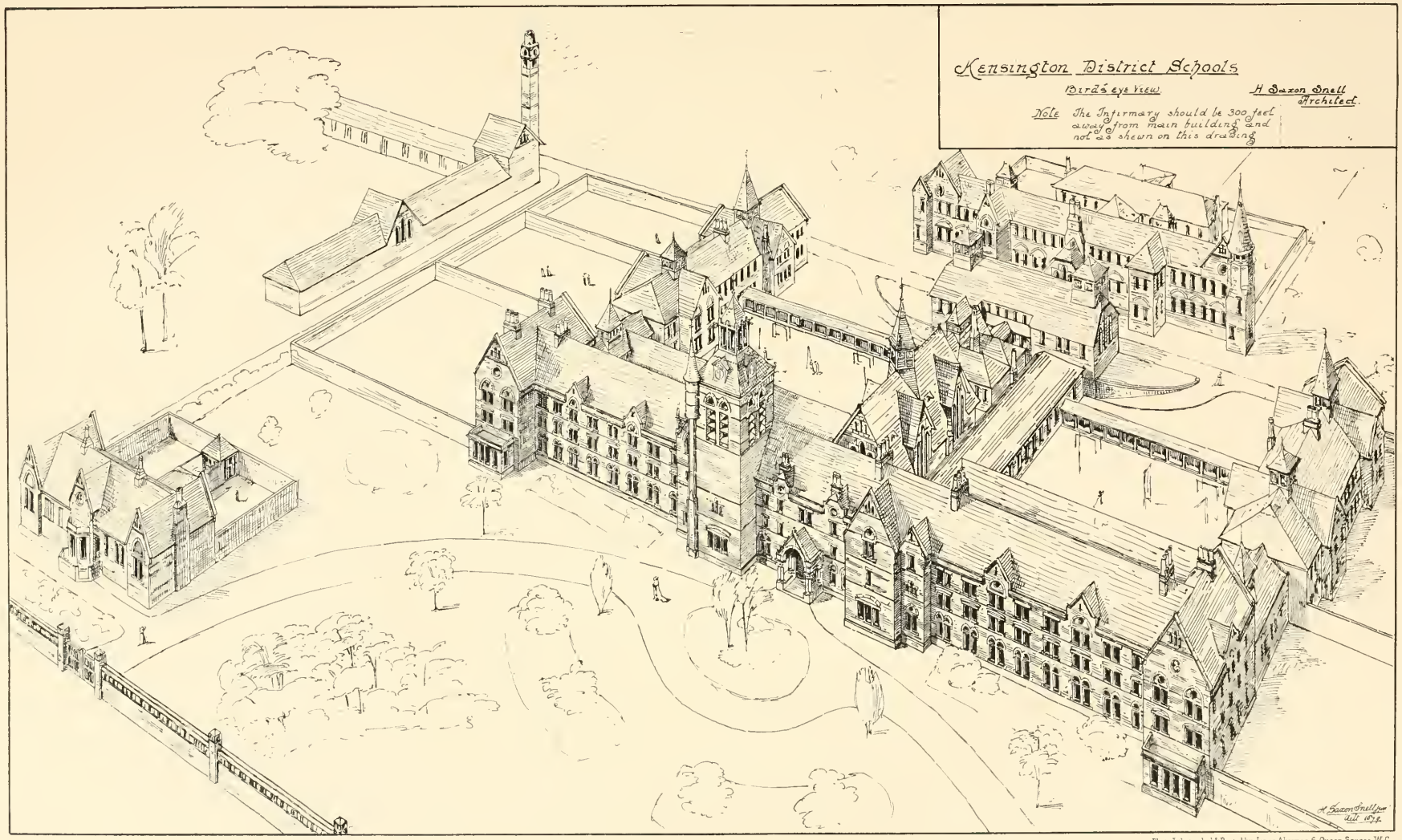
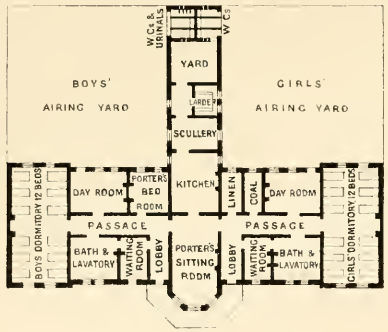
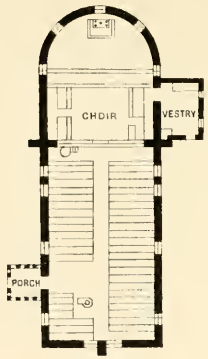

Kensington District Schools
Bird's eye View
H Saxon Snell
Architect.
Note The Infirmary should be 300 feet away from main building and not as shewn on this drawing
H Saxon Snell del 1874

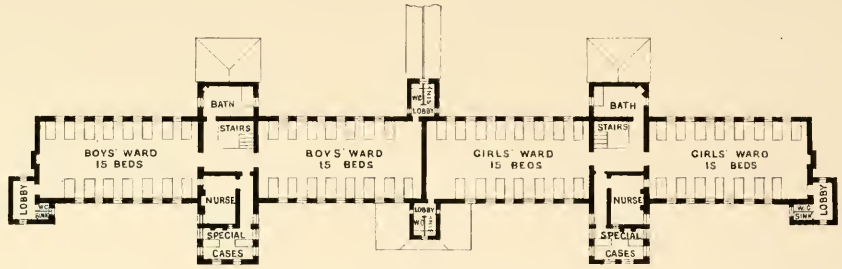
Photo Lithographed & Printed by James Akerman, 6, Queen Square, W.C.



PROBATIONARY WARDS



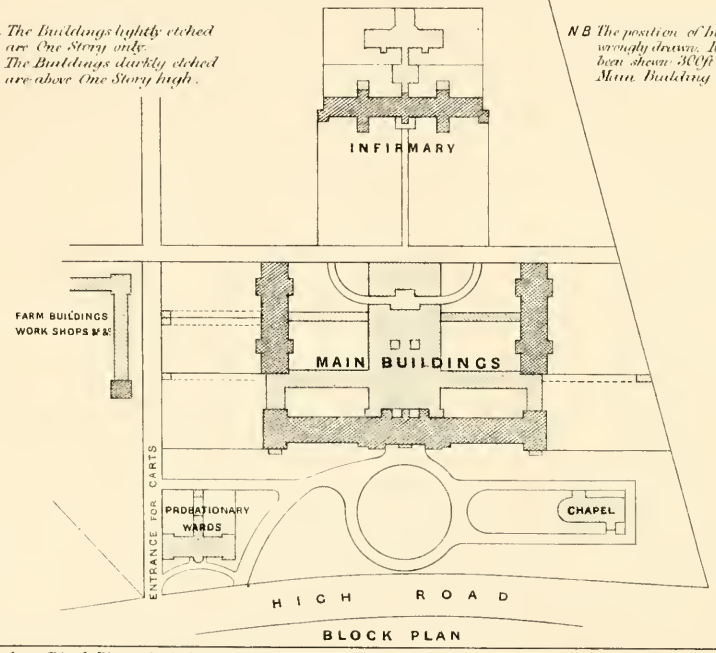
CHAPEL



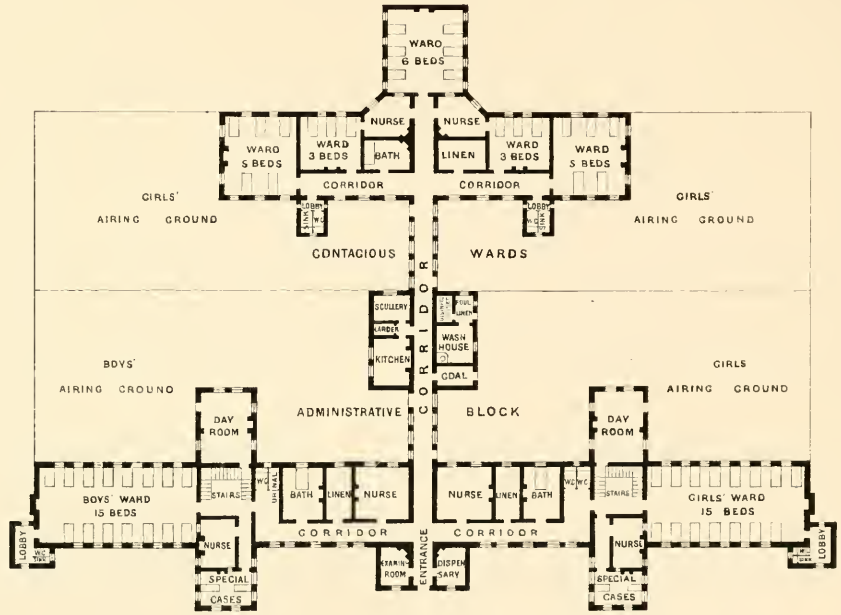
FIRST FLOOR PLAN OF INFIRMARY.

N.B. The Buildings lightly etched are One Story only. The Buildings darkly etched are above One Story high.

N.B. The position of Infirmary is wrongly drawn. It should have been shewn 300ft from the Main Building



BLOCK PLAN



GROUND PLAN OF INFIRMARY

Scale to Block Plan 200 Feet to 1 Inch.
Scale to other Plans 40 Feet to 1 Inch.

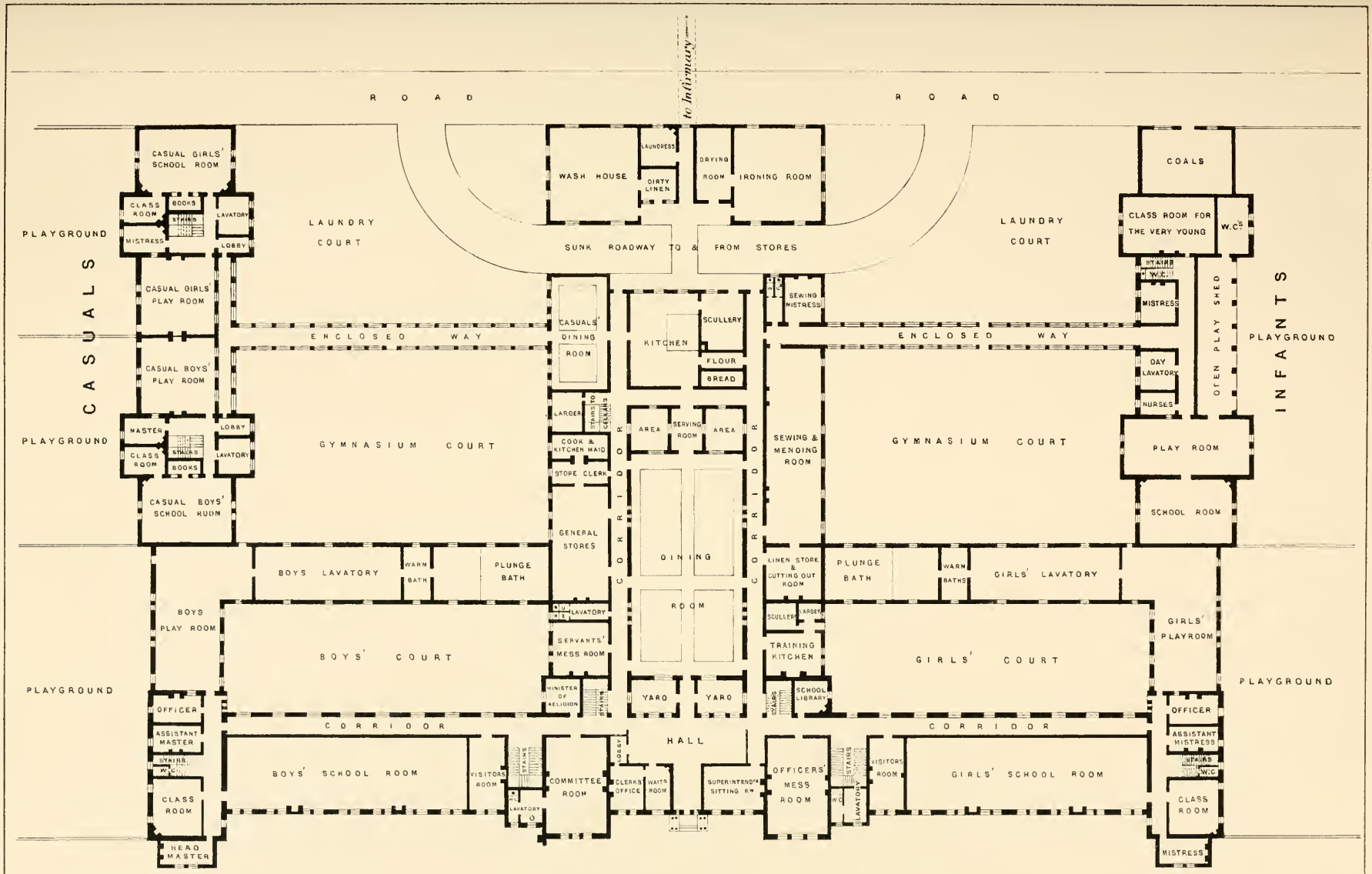
DESIGN FOR

KENSINGTON DISTRICT SCHOOLS

BLOCK PLAN & PLANS OF INFIRMARY, PROBATIONARY WARDS & CHAPEL.

H. Saxon Snell
Architect
22, Southampton Buildings, W.C.

C. F. Kell Litho 46 S. Holborn E.C.



Scale, 40 Feet to 1 Inch.

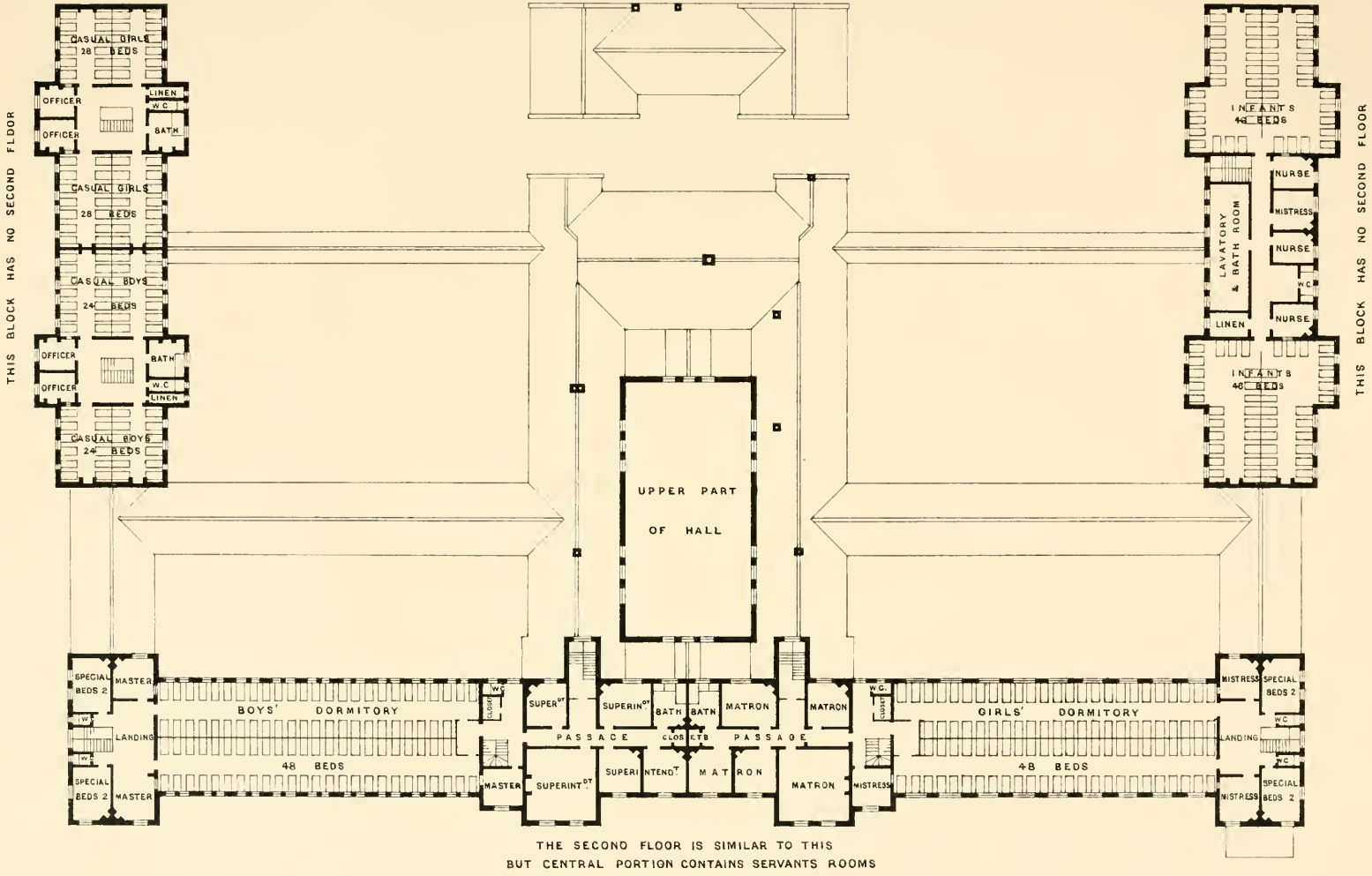
DESIGN FOR

KENSINGTON DISTRICT SCHOOLS

GROUND PLAN OF MAIN BUILDINGS.

C.F. Kell Lith. 8 Castle St. Holborn E.C.

H. Saxon Snell
Architect.
22, Southampton Buildings, W.C.



THE SECOND FLOOR IS SIMILAR TO THIS
BUT CENTRAL PORTION CONTAINS SERVANTS ROOMS

Scale, 40 Feet to 1 Inch.

DESIGN FOR

KENSINGTON DISTRICT SCHOOLS

FIRST FLOOR PLAN OF MAIN BUILDINGS.

H. Saxon Snell
Architect
22. Southampton Buildings W.C.

Design for an Industrial School for 437 Children.

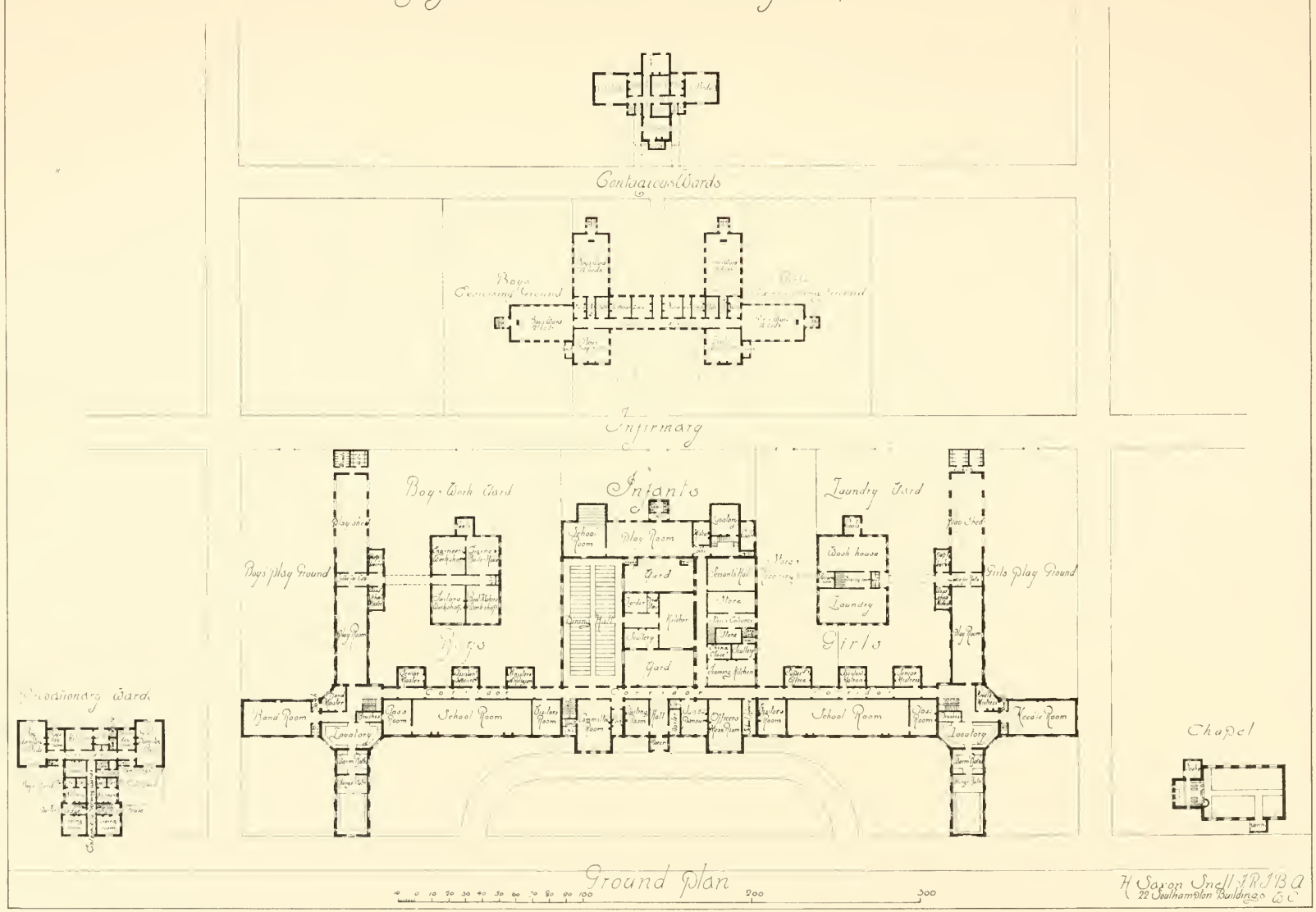
THIS DESIGN was prepared for a Metropolitan Workhouse School, and it provides for the board, education, and maintenance of 357 Pauper Children of both sexes, and 80 Infants, besides accommodation for 56 in the Infirmary and for 20 in the Receiving Wards.

The area of the site, including Cricket Field and Garden Ground, was fifteen and a-quarter acres.

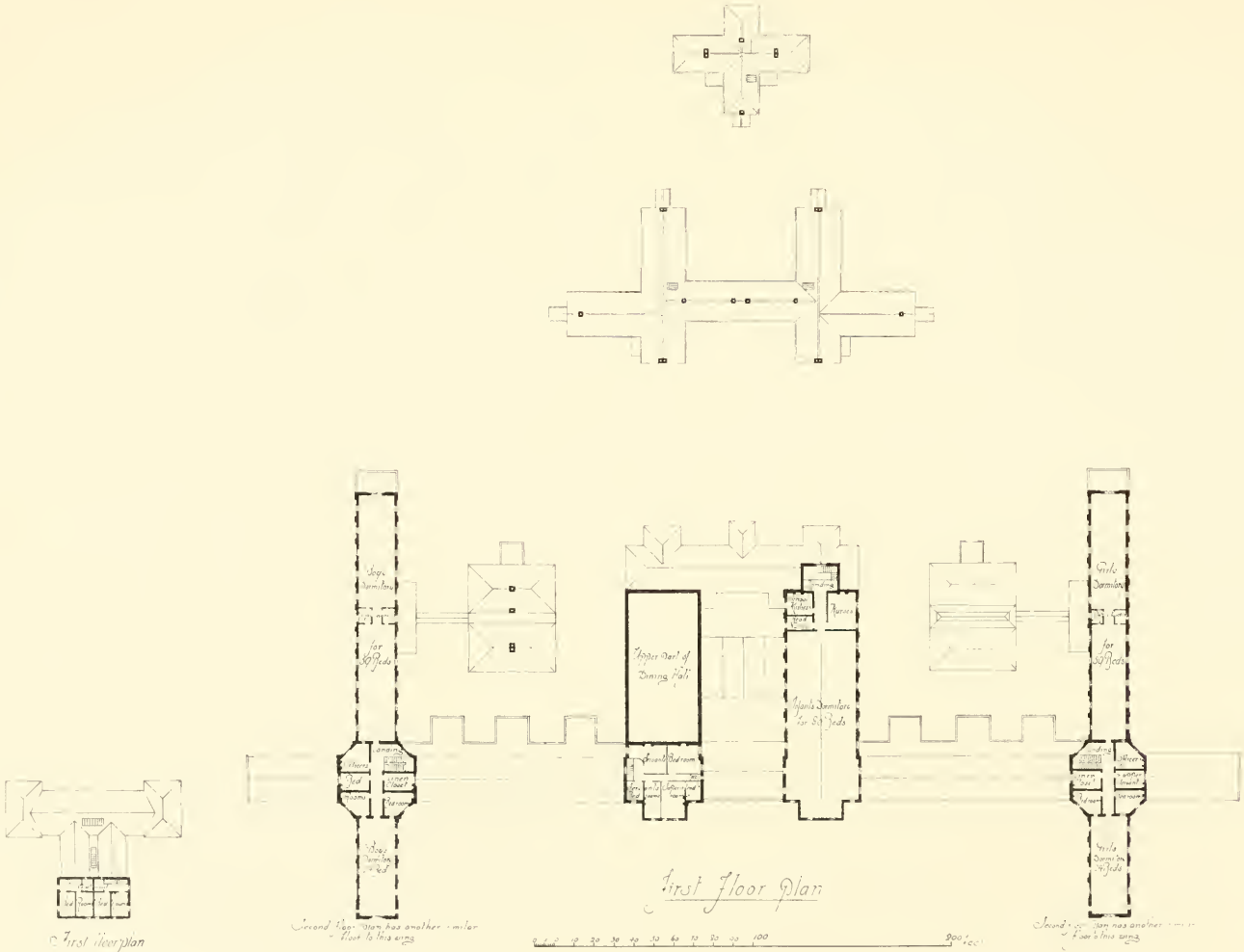
The plans provided for the following accommodation :—

	Area in ft.
Main Building (Boys) :	
2 Dormitories, each for 59 Beds, divided in the centres by Pupil Teachers' Rooms ... and each	2,232
2 Dormitories, each for 24 Beds ,,	891
1 ,, ,, 8 ,, ,,	320
4 ,, for Pupil Teachers ,,	42
2 Linen Closets ... ... ,,	123
w.c.'s, Slop Sinks, &c., on each floor.	
N B.—These are omitted to be indicated on plan, but were intended to be placed where marked "Landing."	
School Room	1,400
Class Room	320
Pupil Teachers' Day Room ...	98
Play Room	1,031
,, Shed	1,031
Band Room	790
Lavatory	482
,, Brush Room	75
Warm Bath Room	252
Plunge Bath Room	630
Lobby for Caps	206
w.c.'s, Urinals, &c., at end of Play Shed.	
Main Building (Girls) :	
2 Dormitories, each for 59 Beds, divided in the centres by Pupil Teachers' Rooms, and each ...	2,232
2 Dormitories, each for 24 Beds, and each...	891
1 ,, ,, 9 ,,	360
4 ,, for Pupil Teachers, each	42
2 Linen Closets	123
w.c.'s, Slop Sinks, &c., on each floor.	
N.B.—These are omitted to be indicated in the plans, but were intended to be placed where marked "Landing."	
School Room...	1,400
Class Room	320
Pupil Teachers' Day Room ...	98
Training Kitchen	420
Scullery	108
Larder...	19
Sewing and Mending ("Needle") Room	790
Play Room	1,031
Play Shed	1,031
Lavatory	482
,, Brush Room	75
Warm Bath Room	252
Plunge Bath Room	630
Lobby for Hats	206
w.c.'s, &c., at the end of Play Shed.	
Infants' School Department :	
2 Dormitories, each for 40 Beds, and each	1,570
N.B.—The separating partition is for the purposes of cross ventilation, not carried up to the ceiling.	
w.c., Slop Sink, &c., off Landing.	
School Room	665
Play Room	1,010
Lavatory and Bath Room	272
w.c.'s, &c., &c.	
Administrative Offices :	
Porter's Lodge, Living Room ...	168
2 ,, ,, Bed Rooms each	98
,, ,, Kitchen	106
,, ,, Pantry and Coal Cellar ... ... each	28
Porter's Lodge, w.c., Linen Closets, &c.	
Engineer's Living Room	168
2 ,, Bed Rooms ... each	98
,, Kitchen	106
,, Pantry and Coal Cellar, each	28
,, w.c., &c.	
Two Receiving Ward Dormitories, each for 10 Beds, and each ...	420
Two Receiving Ward Day Rooms, each	115
Two Receiving Ward Bath Rooms and Lavatories ... ... each	120
Receiving Ward, Linen and Clothes' Store	61
,, ,, Kitchen	184
,, ,, Scullery	77
,, ,, Stores, Larders, &c.	41
,, ,, Disinfecting Closet	21
,, ,, w.c.'s, Urinals, &c., &c.	
Entrance Hall	180
Waiting Room	260
Hall Porter	86
2 Visitors' Rooms ... ... each	320
Superintendent's Office	180
Clerk's Office...	109
Dining Hall	2,616
Committee Room	595
,, ,, Lavatory, w.c., &c.	63
School Library	150
Master's and Matron's Sitting Room	305
,, ,, Bed Room ...	225
,, ,, ,, ...	72
,, ,, Bath Room...	130
,, ,, w.c., Linen Closet, &c.	
Assistant Master's Sitting Room ...	180
,, ,, Bed Room ...	153
Assistant Matron's Sitting Room ...	180
,, ,, Bed Room ...	153
Schoolmaster's Sitting Room ...	180
,, ,, Bed Room ...	153
School Mistresses' Sitting Room ...	180
,, ,, Bed Room ...	153
Infant School Mistresses' Sitting Room	124
,, ,, Bed Room	158
,, Nurses' Rooms	202
,, ,, ,,	103
Chaplain's Room	180
Band Master's Room	182
Needle Mistresses' Room	182
Store Clerk's Room	32
14 Additional Officers' and Servants' Bed Rooms, average each ...	148
Kitchen	595
Scullery	223
Officers' Mess Room	595
Servants' Hall	539
Store Rooms, Larders, &c. (part in Basement)	2,300
Coal Stores (part in Basement) ...	980
Laundry and Workshops :	
Receiving Room	90
Wash-house	800
Drying Room	204
Ironing, Folding, and Delivery Room	800
Boot Maker's and Tailor's Shops, each	434
Engineer's Shop	434
Boiler House and Engine Room ...	434
w.c.'s, Urinals, &c.	
Infirmary :	
4 Wards, each for 12 Beds, and each	720
All these Wards have attached to to them w.c.'s, Sinks, &c..	
2 Day Rooms ... ... each	400
2 Bath Rooms ... ... ,,	78
1 Linen Room	96
1 Nurses' Room	144
2 ,, ,, ... each	78
Medical Officer's Examination Room	144
Dispensary	156
2 Wards, each for 3 Infectious cases, and each	324
2 ,, for 1 ,, ,,	96
1 Bath Room for ,, ,,	110
1 Linen Room for ,, ,,	70
1 Nurses' Room for ,, ,,	192
w.c.'s, Slop Sink, &c.	
Laundry and Wash-house ,,	228
Disinfecting Closet ,, ,,	45
Chapel	1,604
Vestry	95

Design for an Industrial School for 737 Children



Design for an Industrial School for 437 Children


Boys Dormitory for 80 Beds
Upper Part of Dining Hall
Matrons Bedroom
Matrons Dormitory for 80 Beds
Girls Dormitory for 80 Beds
Boys Dormitory for 80 Beds
Girls Dormitory for 80 Beds
First Floor Plan
0 10 20 30 40 50 60 70 80 90 100 200 Feet

First Floor Plan of Engineers & Porters Lodge

Roof over Chapel

H. Saxon Snell F.R.I.B.A.
22 Southampton Buildings W.C.

St. Marylebone Dispensary and Relief Station.

LITTLE UNION PLACE, LISSON GROVE, LONDON, W.

THIS BUILDING provides accommodation for the Poor of the Northern Division of the Parish of St. Marylebone, when applying for out-door relief and medical advice and treatment, and it likewise contains a residence for the Divisional Relieving Officer and the Dispenser. Applicants for relief, requiring to be examined by the Guardians, have to go for that purpose to the Southern Division Dispensary, illustrated in the previous plate. The area of the site is 3,132 feet, and the space is allotted as follows:—

	Area in ft.
Large Waiting Room	1,325
Small ,, ,, ...	123
Relief Office	179
Doctor's Room	132
,, ,, ...	166
Dispensary	186
w.c.'s, Urina's, &c.	

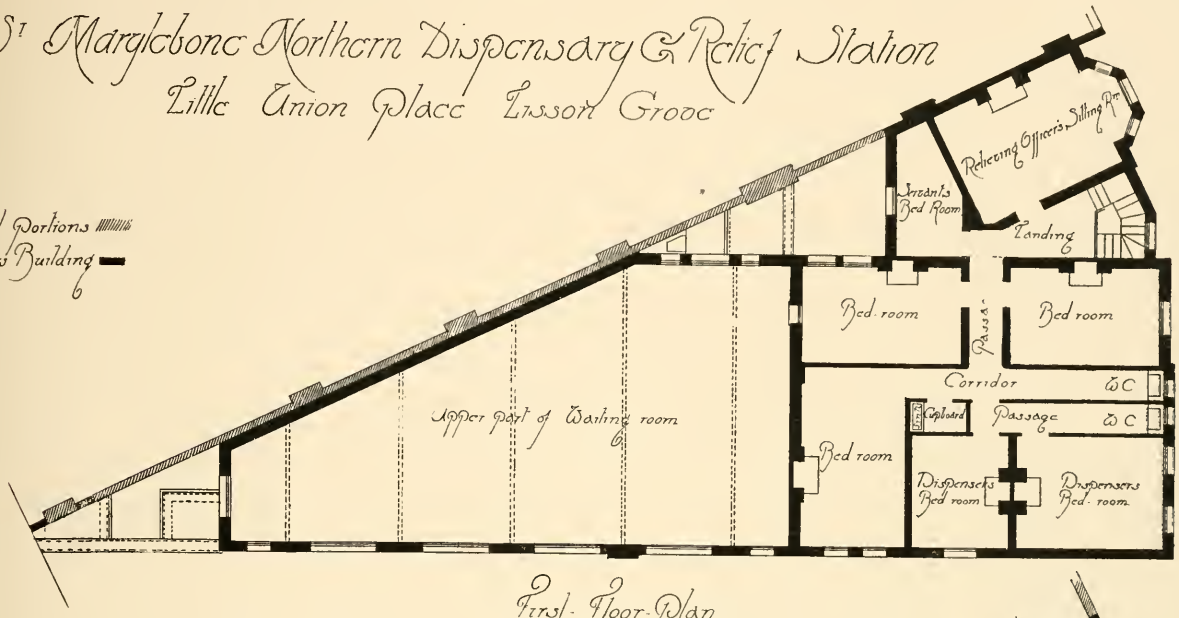
	Area in ft.
2 Relieving Officers' Sitting Rooms each	232
,, ,, Kitchen ...	179
,, ,, Scullery ...	60
,, ,, Bed Room ...	212
,, ,, ,, ,, ...	179
,, ,, ,, ,, ...	166

	Area in ft.
Relieving Officer's Bed Room ...	85
Dispenser's Sitting Room (wrongly marked on plan "Bed Room")	187
Dispenser's Bed Room	124
Linen Closets, w.c.'s, Coal Cellar, Larder, &c., &c.	

St Marylebone Northern Dispensary & Relief Station

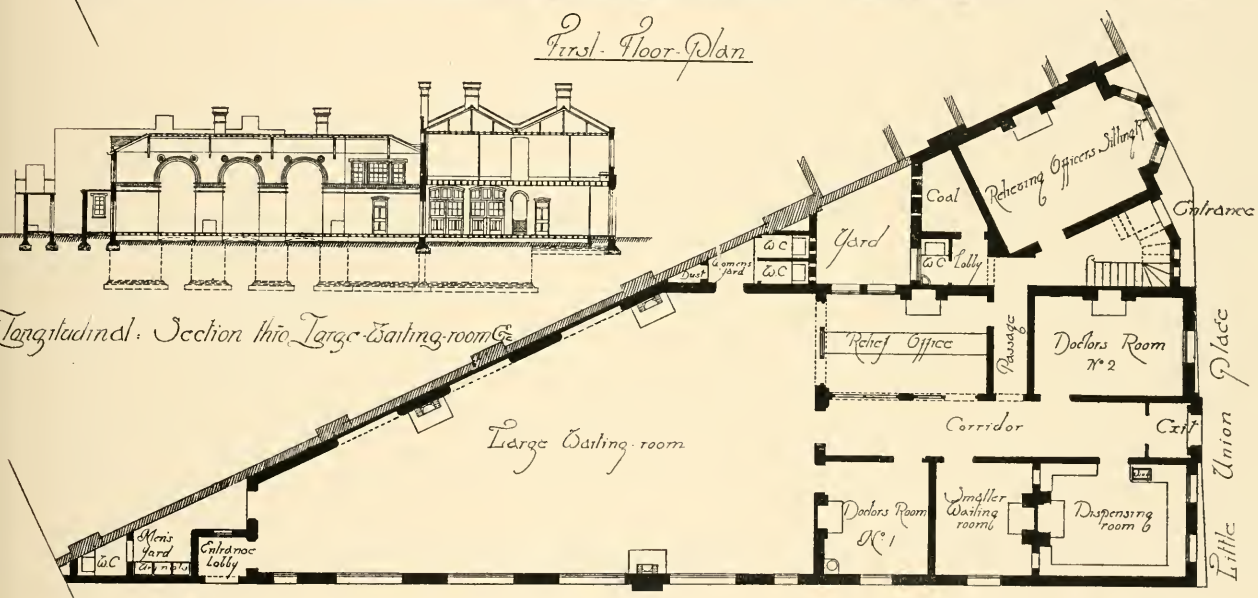
Little Union Place Euston Grove

Old Portions
New Building

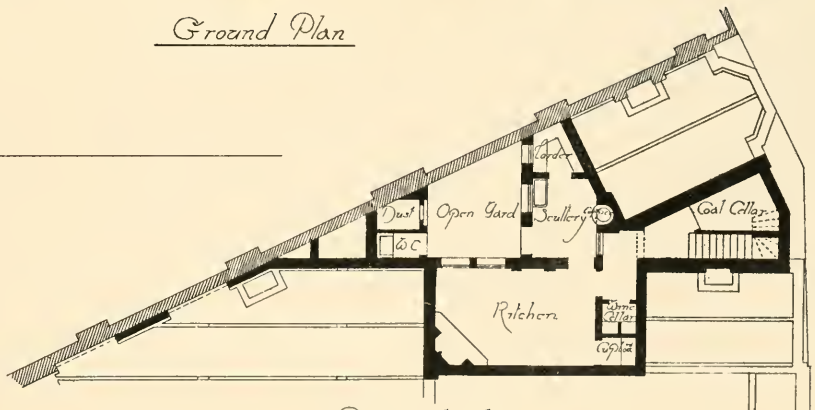


First Floor Plan

Longitudinal Section thro Large Waiting room &c



Ground Plan



Basement Plan

Scale 10 0 10 20 30 40 50 Feet

H. Saxon Snell F.R.I.B.A.
Architect

Photo lith^d by . F Kell . castle St Holborn .

St. Marylebone Dispensary and Relief Station.

EAST STREET, LONDON, W.

THIS BUILDING provides accommodation for the Poor of the Southern Division of the Parish of St. Marylebone, when applying for out-door relief, and medical advice and treatment. It also contains a residence for the Divisional Relieving Officer and the Dispenser. Applicants from both Divisions are examined here by the Guardians, and for this purpose there is provided a commodious Committee Room and Offices.

The area of the site is 5,790 square feet, and this space is allotted as follows, viz.:—

	Area in ft.
Large Waiting Room	1,330
Small ,, ,, ...	190
Relief Office	204
Three Doctor's Rooms, each ...	128
Dispensary	145
Drug Room	145
w.c.'s, Urinals, &c.	
Committee Room	699
Committee Clerk's Office	124
,, Lavatories	87
,, w.c., &c.	
Relieving Officer's Sitting Room ...	164
,, ,, Kitchen ...	217
,, ,, Scullery ...	219
,, ,, Bed Room ...	172
2 Relieving Officer's Bed Rooms, each	234
2 ,, ,, ,, ,,	227
Linen Closets, w.c., Coal Cellar, Larder, &c.	
Dispenser's Sitting Room	227
2 ,, Bed Rooms ... each	234
,, w.c., Linen Closets, &c.	

St Marylebone
Dispensary & Relief Office
East Street-West

A Saxon Snell F.R.I.B.A.
Architect

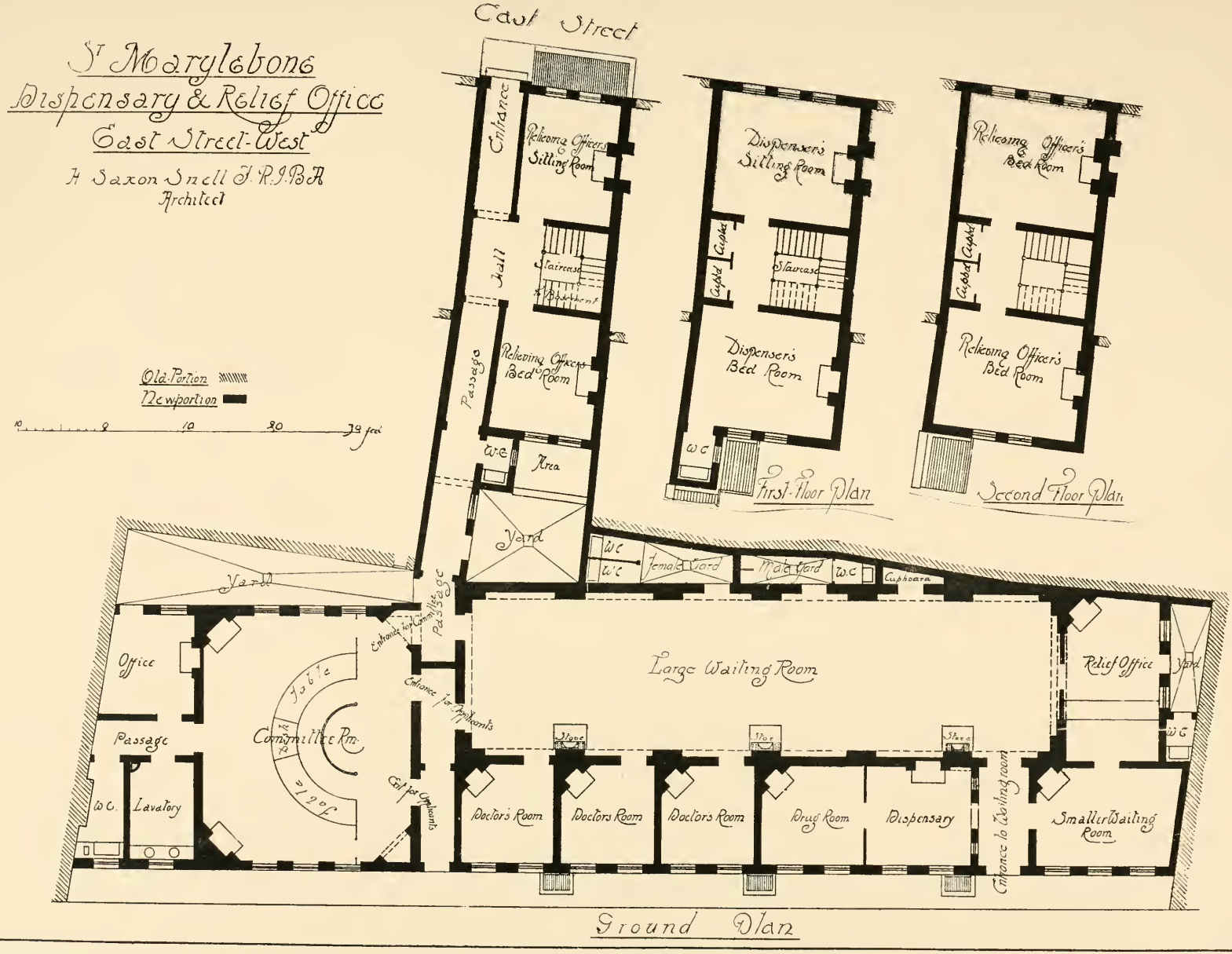


Photo Lith.d by F. Kell ... castle St Holborn

Clerkenwell Mortuary.

NORTHAMPTON ROW, LONDON, W.C.

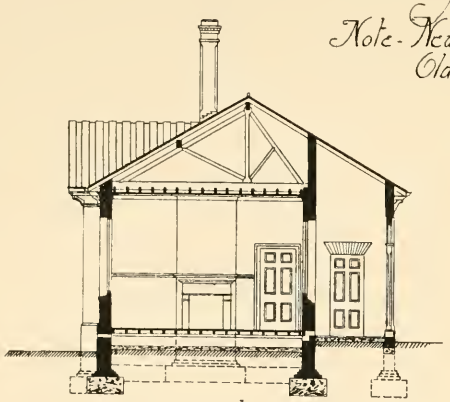
THIS BUILDING, erected for the Vestry of the Parish of Clerkenwell, was opened in 1877. It contains all the requisite accommodation for a Mortuary and Coroner's Court. An old house in Northampton Row was converted to the purposes of an Entrance and Caretaker's Residence. The building over the Disinfecting Chamber is carried up as a Tower, with cisterns for water, and a flue carried up the walls of this Tower conveys away any noxious vapours from the Disinfecting Chamber to the highest point of the building. The Verandah is provided for the convenience of the Jurors and the Coroner when viewing bodies in the adjoining Dead-houses. It would have been better had the site permitted an enlargement of the Inquest Room.

The site is 3,240 feet in extent, and the main building and yard stands upon a portion of the now-disused Spa Fields Burial Ground. The space is allotted as follows, viz. :—

	Area in ft.		Area in ft.
2 Dead Houses, ... each	288	Inquest Room	374
Post-mortem Room	278	Waiting Room for Witnesses ...	278
Disinfecting Chamber	38	w.c's., &c.	
Coal Store, Furnace Room, Shed, &c.			

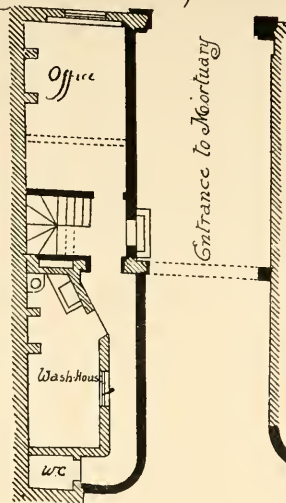
Clerkenwell Mortuary

Note - New portions ▬
Old - do - ▨

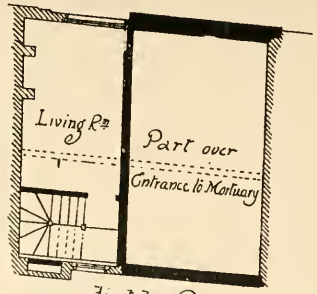


Section thro Inquest Room

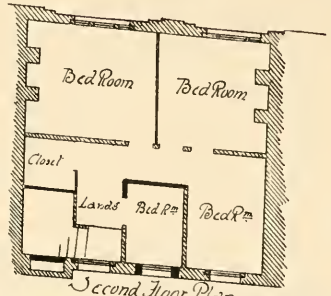
Northampton Row



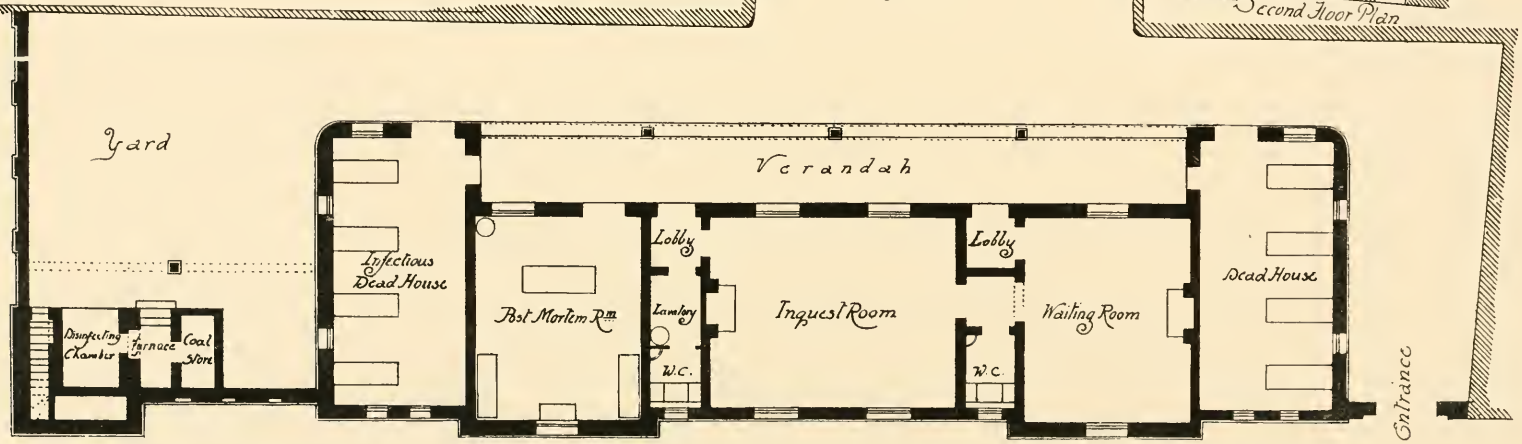
Yard



First Floor Plan



Second Floor Plan



Ground Floor Plan

10 5 0 10 20 30 40 feet

H Saxon Snell F.R.I.B.A.
Architect

Lunatic Wards—Hendon Union Workhouse.

EDGWARE

IT is proposed to erect these Wards for the reception of ten Lunatics of each sex. The arrangement, it will be seen, is such that the Attendants shall have at all times the most perfect supervision possible over the inmates. The accommodation to be provided is as follows, viz.:—

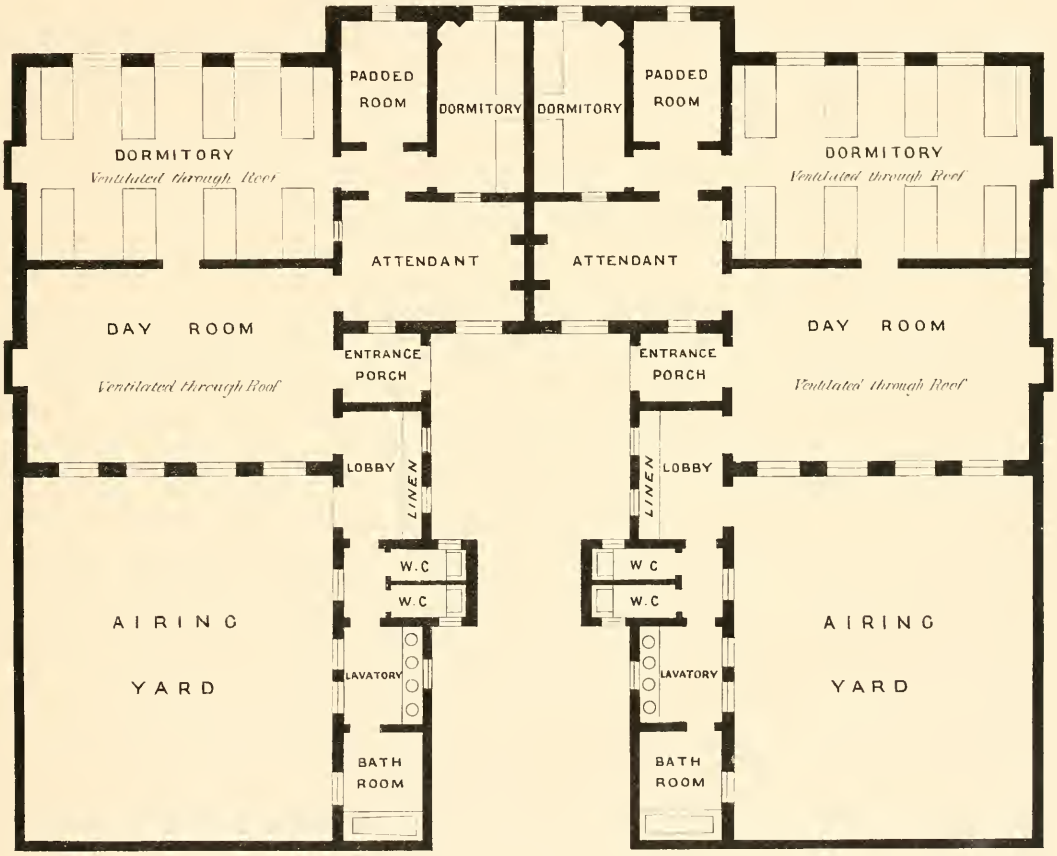
	Area in ft.
Male Dormitory for 8 Beds ...	400
,, ,, ,, 2 ,, ...	100
,, Day Room	400
,, Padded Room...	70
,, Bath Room	63
,, Lavatory	56
2 ,, w.c.'s and Urinals	

	Area in ft.
Male Lobby for Hats with Dwarf Linen Presses	77
Female Dormitory for 8 Beds ...	400
,, ,, ,, 2 ,, ...	100
,, Day Room	400
,, Padded Room	70

	Area in ft.
Female Bath Room	63
,, Lavatory	56
2 ,, w.c.'s ,, Lobby for Hats with Dwarf Linen Presses	77
2 Attendants' Rooms ... each	153

PROPOSED LUNATIC WARDS, HENDON UNION WORKHOUSE

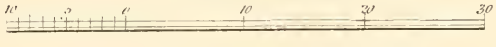
EDGWARE.



FEMALE LUNATICS

MALE LUNATICS

Scale of Feet



H. SAXON SNELL & SON
Architects.

Swimming Bath, St. Marylebone.

SEYMOUR PLACE, LONDON, W.

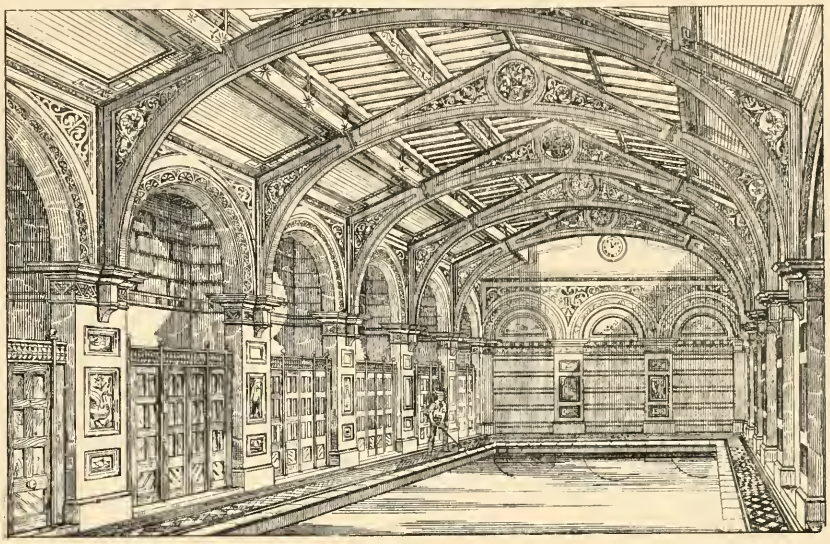
THIS BATH was erected for the Commissioners of Baths and Wash-houses of the Parish of St. Marylebone, and was opened in 1874. The Bath is 73 feet long and 26 feet wide, with a depth varying from 5 feet 6 inches to 7 feet 6 inches, and it is lined inside with white and blue-glazed tiling, the portion above the level of the water being ornamented with conventional representations of fishes and other aquarian life. The panels on the piers and other parts of the interior of the Bath Room are also embellished with similar ornamental tiling.

The extent of the site is 4,266 square feet, and the accommodation provided is as follows, viz. :—

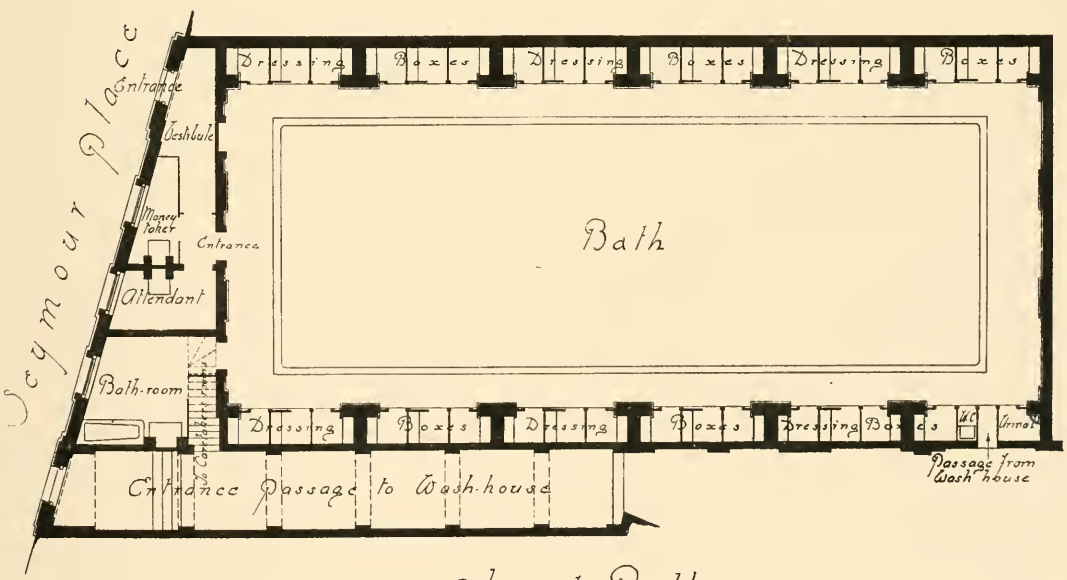
	Area in ft.
Bath Room	2,796
16 Dressing Boxes, each average ...	15
w. c., Urinal, &c.	
Warm Bath Room	138
Attendants' Office	62
Money Taker's Box...	40

	Area in ft.
Caretaker's Living Room	194
,, Kitchen...	95
,, Bed Room	120
,, w.c. Linen Closet Pantry, &c.	

St Marylebone Baths & Washouses
First Class Swimming Bath



Perspective View



Plan of Bath

H. Saxon Snell F.R.I.B.A.
22 Southampton Bldgs W.C.

C.F.Kell, Photo-Lith. Castle St. Holborn E.C.

Data for Cost.

In order to complete the usefulness of this Work, it is desirable that some data should be given by which to ascertain the probable cost of buildings of the kind illustrated, and when proposed to be erected in any particular locality. It would be simply useless to merely state what has been the actual cost of these buildings; such information would, in fact, be misleading, for the prices of most building materials and labour have gradually risen to from 15 to 25 per cent. since the first of the designs were carried out; and were this not so, it is obvious that the cost of any building situated, perhaps, on the top of a hill distant from a goods station, would be greater than if the same building were placed upon level ground and in proximity with a railway siding. And, again, the cost of two buildings erected on an exactly similar plan would be more or less divergent, as the finishings were of the ordinary or of the most approved description, the walls plastered or unplastered, the foundations expensive or inexpensive, &c. &c. Moreover, if the ridiculously low price for which some of the buildings here illustrated were to be told, it would be necessary to say how soon before or after the completion of the works the builder became bankrupt or compounded with his creditors; and with respect to other unusually costly buildings, it would have to be pointed out that they were more expensive than they otherwise should be, consequent upon the urgent necessity for working at them day and night in order to minimise the evil effects of overcrowding, or upon some other such emergency.

It has, therefore, been thought best to give the following statement of the cubical contents of all the buildings illustrated, and from this data any Architect can with great ease arrive at the approximate cost of any similar structure proposed to be placed upon a given site.

	Cubical contents.
Infirm Wards, St. Marylebone Workhouse	322,926 cubic feet.
St. Luke's Workhouse	1,968,165 ,,
St. Olave's Union Infirmary, including old portions	1,019,184 ,,
St. George's Union ,, ...	2,387,296 ,,
Holborn Union ,, ...	2,035,706 ,,
St. Marylebone ,, ...	2,991,631 ,,
Design for a Workhouse Infirmary with Circular Wards	3,033,166 ,,
Design for ditto with Wards constructed in the parallelogram form shewn by wood-cut on page 15	2,578,073 ,,
St. George's Union Workhouse (Able-bodied Wards only)	606,516 ,,
Metropolitan Convalescent Institution ...	264,960 ,,
Casual Wards, St. Olave's Union	85,034 ,,
,, St. Marylebone	193,310 ,,

	Cubical contents.
Lodgings for Houseless Poor, Nijny-Novgorod	165,446 cubic feet.
St. Marylebone Temporary Casual Wards	71,578 ,,
Royal Commission of the Patriotic Fund, Boys' School	823,299 ,,
Design for an Industrial School for 628 children	1,605,160 ,,
Design for Kensington District Schools ...	2,394,829 ,,
Design for an Industrial School for 437 children	1,286,420 ,,
St. Marylebone Northern Dispensary and Relief Station	97,764 ,,
St. Marylebone Southern Dispensary and Relief Station	143,058 ,,
Clerkenwell Mortuary	55,777 ,,
Hendon Union Lunatic Wards	59,281 ,,
St. Marylebone Swimming Bath	153,560 ,,

Extracts from Official Documents as to the Construction of Hospitals, Workhouses, &c.

THE following Extracts from Official Documents, published at various times under Government authority, and relating to the construction of Workhouses and other like Public Buildings, can hardly fail to be of service in the consideration of how best to design structures of the kind illustrated in this work.

It must not, however, be supposed that the rules which these documents appear to lay down are to be relied upon as representing the unalterable dictum of the authorities, whose duty it is to approve the designs for any proposed Public Building. Indeed, it will be seen that the regulations are themselves generally drawn up in a very elastic manner, and that they are apparently not always consistent the one with the other. It will, no doubt, be also remarked that the designs in this book are in some instances directly opposed to these rules, and it will be as well therefore to state that wherever the cubic or superficial contents to be allowed for any particular class of inmate is specified this must be taken as being the *minimum* allowance, and that objection will seldom be taken to a reasonable increase of this space; also, that in case of the persistent determination of a Board of Guardians or other public body to depart in matters of detail more or less important from any particular rule or rules, the Government will seldom put in force their compulsory powers, and in this way it has come about that there are very few, if any, buildings erected, the details of which entirely conform to the regulations provided for in the following documents. It is, however, certain that the more nearly a design conforms to the spirit of these regulations the less trouble will the Architect and his clients have in combating the objections that will surely be raised by the Government authorities to any departure from them.

REPORT OF THE COMMITTEE APPOINTED TO CONSIDER THE REQUISITE AMOUNT OF SPACE, AND OTHER MATTERS, IN RELATION TO WORKHOUSES AND WORKHOUSE INFIRMARIES.

7th February 1867.

The Committee appointed by the Right Honourable the President of the Poor Law Board to advise upon the amount of space to be required in metropolitan workhouse infirmaries, and upon other allied matters, have had under their most careful consideration the questions proposed to them, and upon these questions, taken in their order, the Committee beg leave to offer the following observations and replies:

Question 1. "What amount of floor and cubical space should be allotted to the bed of each *sick* inmate in wards occupied both by "day and by night; it being understood that fever and small-pox patients, idiots, and epileptics are for the future to be provided for in "separate and distinct buildings?"

The essential condition of the needful cubic space is the maintenance, in the air which fills that space, of such degrees of purity and temperature as shall keep it free from danger to the health of those who habitually breathe it; and this condition evidently involves the difficult problem of ventilation. The purity of the air within an inhabited space enclosed on all sides is necessarily vitiated by the emanations proceeding from the bodies of those who inhabit it, and especially by the effects upon it of their respiration. What is the precise limit between safety and danger from vitiation of that kind, science has as yet been unable to determine. Experience, and impressions made upon the senses, are herein more trustworthy guides than authority, which on this question has been strangely at variance with itself.

It is stated in a Return laid before the Committee from the medical officers of 42 metropolitan and suburban workhouses, that in nine instances only of the 42 could any facts be alleged by them showing that patients in sick wards had suffered at all from overcrowding. In two of these nine instances the *spread of fevers* was the evil specified; in one case inconvenience; in another, retardation of cures and deterioration of health; and in the remaining five, slowness of convalescence;—were ascribed to that cause.

In another Return of 40 answers to the question, "Is the recovery from illness retarded by the existing accommodation and arrangements generally, or in any particular wards?" 10 are in the affirmative, 21 in the negative, and 9 are either vague, inconsistent, or not to the point.

One very remarkable fact disclosed by these returns is the infrequency of childbed fever, and the small ratio of mortality produced by it, in those houses; where within the last five years nearly 12,000 poor women have been delivered.

The wards of nearly all the metropolitan workhouses and infirmaries have been visited, some of them more than once, by more or fewer of the members of the Committee, both by day and in the night, without previous notice; and although the visitors found some of those wards free from close or offensive odours, yet most of the wards were not exempt from the peculiar odour which results from overcrowding; the sense of smell being a very delicate test of that sort of impurity. Under a better system of ventilation, strictly enforced, it may reasonably be concluded that a more favourable condition of the air would have been noticeable.

The result of the information thus collected, of the personal knowledge and experience of the several members of the Committee, of other diligent inquiries, and of careful and repeated consideration of the whole subject is, that, in the opinion of the Committee, there should be allotted to each sick inmate in metropolitan workhouses an air space of not less than 850 cubic feet on an average, and that in those cases where the height of the ward is more than twelve feet, such additional height should not be taken into account in calculating the cubic space of 850 feet; that there should be allowed a clear space of six feet across each bed, and that no bed should be placed on the middle of the floor.

In thus fixing the space which they consider requisite for the comfort and proper administration of the sick in workhouses, the Committee have not overlooked the fact that it may be impossible (on account of the construction of the present buildings) to give immediately, in every case, the space recommended, and they feel that a certain amount of discretion must be left with the administrative, in carrying into effect the recommendations of the Committee. But it is their strong opinion that, even under existing circumstances, there should in no case be allowed a less space than three feet between the beds, and that no bed should, under any circumstances, contain more than one person.

The amount of floor and cubical space recommended by the Committee is less than that which has been assigned, by men whose opinions command respect, as the requisite amount for hospitals generally.

The discrepancy is more apparent than real. The difference arises from a difference in the objects contemplated. Hitherto contagious fevers have been rarely admitted, and never long retained, in workhouse infirmaries, and henceforth they are to be entirely excluded. Persons suffering disorders of that kind are to be sent to hospitals appropriated to such cases; or, should that not be practicable, are to be placed in separate wards, provided and arranged beforehand for the purpose.

Now, between wards in which infectious fevers and other contaminating disorders are admitted, and wards from which they are excluded, the difference is immense; and it is a difference which concerns the welfare and safety, not so much of the sick who are so afflicted, as of the other inmates of the ward.

Wherever these infectious disorders are present, ample space and a very free circulation and change of the air, are imperatively required for diluting and dissipating, and so rendering innocuous, the contagious products and emanations which they engender; and for thus obviating a danger far greater and graver than that belonging to an atmosphere made impure by mere overcrowding—the danger, namely, lest the air should become and remain so charged with the poison of the specific disease, as to excite the same perilous disease in other occupants of the ward.

The Committee further recommend that cases which give rise to offensive smells should be placed in wards completely separated from the wards occupied by ordinary cases, and called "Separation Wards;" and that an air-space of not less than 1,200 cubic feet on the average should be allowed for each of such offensive cases; the selection of these cases being left to the discretion of the medical officer of the workhouse.

To question 2, which is—"What amount for each bed in those wards which are *partially* occupied by day and by night by the "'chronic' and infirm, many of whom are usually able to leave these wards during a portion of the day for change of air in any "adjoining yard or day-room?" the Committee answer—

That each of such wards should have the use of a day-room. This being provided, an average of 500 cubic feet for each bed will suffice.

As bearing upon this question, the Committee would call attention to the fact that while the bulk of the patients admitted into General Hospitals are of adult and middle life, a very large proportion of the habitual inhabitants of these wards are simply men and women whom age has rendered mentally and bodily infirm; and it is well ascertained that far less air is respired in a given time, and far less vitiation is therefore occasioned, by old persons, than by persons in the vigour of life.

To question 3, which runs thus: "What space should be allotted to each bed in those wards which are termed 'surgical'?" the Committee reply—

The same as has been recommended in the answer to question No. 1, it being understood that in workhouse infirmaries surgical cases of a serious character are of rare occurrence.

To questions 4 and 5, namely—"What space should be assigned to each patient in venereal or lock wards?" and "What for inmates having itch, and other cases of cutaneous disease?" the Committee reply—

The same as to the other sick.

Question 6 is—"What for lying-in wards?"

The general exemption of these wards in the workhouse infirmaries from serious disease, and especially from puerperal fever, and the very small amount of mortality which they present, have already been noticed. It appears, indeed, from a minute analysis of the returns laid before the Committee on this subject, that, in point of fact, a very large air-space, much exceeding 850 cubic feet, has been enjoyed, on an average, by each of the parturient women in almost all the workhouses. The comparative freedom of the lying-in wards from disaster may probably have been owing in part to the ampler air-space thus actually shared among the women, though the Committee are conscious that much of the immunity was attributable to other causes. They recommend, therefore, that a rule should be laid down limiting the air-space to be allowed in each ward, for the future, as a minimum for these cases, to 1,200 cubic feet each on the average,

Question 7. "Do the Committee consider it essential for health that any addition should be made to the minimum space of 300 "cubic feet which is now required for each bed in wards occupied by night only by healthy adults or children?"

The Committee have had before them no evidence to show that the minimum space now required is too little; they recommend, however, that whenever there is sufficient width in these wards to admit of more than one row of beds along their centre, the ward shall always be divided longitudinally by what is called a spinal partition. They also recommend that in future the dormitories be so constructed as to contain two rows only of beds.

Question 8. "What course would the Committee recommend for adoption in the event of its being temporarily necessary under "present pressure to retain cases of fever or small-pox in a workhouse until admission can be obtained at one of the hospitals specially "provided for such cases?"

The Committee recommend that, under the circumstances specified, such cases should be removed at once into a separate ward; or, if that should not be practicable, that a bed should be taken away on each side of every fever or small-pox patient lying in the ordinary wards.

Question 9, "What space would they recommend for each patient in special hospitals for fever and small-pox?"

The same space as is allotted in the existing fever and small-pox hospitals; or 2,000 cubic feet.

Question 10. "Can they offer any and what general recommendations on the subject of ventilation of existing sick wards; or, as to "the best proportions for, arrangements, and ventilation of new wards in any workhouse hospitals hereafter to be built?"

The question of cubic space is subordinate to the more important question of ventilation; by which the Committee mean the continuous renewal of the air within a given confined and inhabited space, of whatever shape, size, or surroundings, so that it shall be kept pure or nearly pure, and shall vary within a few degrees only of moderate temperature.

It is plain that the complete and scientific solution of the problem of ventilation, thus understood, would govern and include the scientific answer to the questions of space proposed by the Poor Law Board for consideration by the Committee.

The requisite space, when settled once for all, will need no further pains; deviations from the prescribed amount can scarcely escape notice. It is not so with ventilation; yet if this be neglected, all regulation of cubic space becomes an idle care. The Committee, therefore, would suggest watchful and constant attention to this subject of *Ventilation;* to its easiest, cheapest, and most effectual methods, and to the means of adapting them to the various forms and dimensions of existing rooms. Whatever methods are adopted should be rigidly enforced by some resident official or frequent inspector; they should be made secure against the intermeddling of the pauper inmates and servants of the house; and they should avoid the ingress of strong currents of cold air, or at least the incidence of such currents upon the bodies of the inmates: for to aged persons there is much more, both of peril and of discomfort, from exposure to a low temperature, and especially to cold drafts, than from the closeness which may be consequent upon overcrowding. In the sick wards, and in the rooms of the aged and infirm, the temperature during the night ought not to be allowed to fall much below the day-average; and this arrangement should be under the control of the medical officer.

In respect of both present and future infirmaries, the Committee are desirous of directing the attention of the Poor Law Board to a plan described* by one of the Members of the Committee, as having been devised, and found practically successful in solution of the analogous problem—the ventilation of barracks and military hospitals.

In relation to the general subject submitted to their consideration, the Committee hold it to be most desirable that adequate day-rooms well ventilated and lighted, and proper exercising grounds, should be provided for the paupers who are not confined to their beds.

Question 11. "Can the Committee advise the Board as to the best means of securing and keeping up an efficient supply of trained "nurses, and as to the proportion of nurses to patients which it is desirable to maintain in workhouse infirmaries?"

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*See Extract from Captain GALTON's Paper following.

The Committee not having gone into the subject themselves, refrain from expressing any opinion of their own respecting it. They append, however, a paper relative to this Question, which Miss Nightingale has been kind enough to send, in answer to a request from the Committee, conveyed to her through their Chairman.*

Throughout their deliberations and inquiries the Committee have regarded the questions submitted to them as being, not merely speculative, but, on the contrary, eminently practical questions, involving vast and wide principles, moral and economical. They conceive that the balance needs to be held as evenly as may be possible between the well-being of the inmates of the workhouses, and the interests of the ratepayers, by whom those places of refuge are supported. The problem to be solved really is, what is the amount of floor and cubical space which shall not be too little on the one hand, nor more than enough on the other—not too little for the health and due comfort of the pauper inmates, sick or well, not pressing too much upon the means of the poorest ratepayer. This practical aspect of the question the Committee have deemed it their duty to keep steadily in view: always with an inclination, if the balance cannot be strictly adjusted, towards the side of the sick and poor. It is fit that these houses be made safe, decent, and commodious; it is neither necessary nor expedient that they be made inviting.

In conclusion, the Committee desire to say that while the space which they have recommended is in excess of the minimum space hitherto allowed, the increase has been suggested, both because the latter space is not, in their judgment, compatible with the rapid restoration of the sick to health, and because they think it insufficient for the purposes of ventilation, decency, and administration—matters of importance to all inhabitants of a workhouse, whether to those who are actually ill, or to those who may be regarded as inhabitants for life.

EXTRACT FROM A MEMORANDUM BY CAPTAIN DOUGLAS GALTON, C.B., F.R.S., ON THE VENTILATION OF WORKHOUSES AND THE CONSTRUCTION OF INFIRMARY WARDS.

The problem for Ventilating Workhouses is much the same as that laid down for Barracks, which was stated by the Barrack and Hospital Improvement Commission Report of 1861, p. 71, as follows:—

"In a building consisting of a number of rooms generally entered from common passages or staircases, sometimes directly from the outer air, and each having an open fire-place, which it is essential in every instance to retain, how to supply, at all seasons and temperatures, and by day and night, each room by itself and independent of every other room, with a sufficiency of air to keep the room healthy, and at the same time to prevent the temperature from falling below what is required for the comfort of the men. To do this with the least possible interference with the structure of the rooms, on a plan not easily deranged, and at a minimum of cost?"

The principles laid down by that Commission appear to be those best calculated for Workhouses, viz.:—

I. To keep each room independent of every other room in respect of ventilation.

II. To depend for the ventilation upon the fire-places and upon the difference of temperature between the external air and the air within the rooms.

These principles can be carried into effect as follows:—

1. Outlets for heated and impure air should be provided by means of shafts carried up from the ceiling to above the roof, affording a sectional area of 1 inch to every 50 cubic feet of space in the room for the upper floors; of 1 inch to every 55 cubic feet in rooms on the floors next below, and of 1 inch to every 60 cubic feet for rooms on lower floors.

These shafts should be placed if possible on the same side as the fire-places, but in the corners of the room furthest removed from the grates.

Each gas-jet burning in the bed rooms at night should be covered with a bottomless lantern, connected by a tube with the foul air extraction shaft, thus carrying off the products of combustion and also tending to put the air in motion upwards in the shaft.

2. Inlets for fresh air. Means for the admission of air of the ordinary temperature should be provided direct from the outer air, independent of the windows and doors; for this purpose Sherringham's ventilators should be placed between the windows near the ceiling, which should afford a combined area of at least 1 square inch for every 100 cubic feet of space in the room, and openings of equal size should be placed close to the floor under the beds, but these latter should be capable of being easily and securely closed.

For the admission of fresh warmed air, the ventilating grate which has been adopted in barracks should be used.†

It is essential that the ventilating apparatus should be periodically thoroughly cleaned, and that some person in the Workhouse should be charged with the superintendence of the arrangements, and be responsible that they are maintained in an efficient condition.

In all newly constructed Infirmaries the wards should be on the pavilion principle, with windows on opposite sides, the beds being arranged along the walls between the windows. The pavilions should not have more than two floors of wards, *i.e.*, the ground floor and the first floor, and the adjacent pavilions should be placed laterally apart, at a distance equal to at least twice the height from the level of the floor in the wards on the ground floor of the building to the eaves of the roof.

The width of the wards should not be less than 24 feet. The other dimensions would follow from the cubic space laid down in the recommendations of the Committee.

The number of windows should be at least equal to half the number of beds, and they should extend from 2 feet 6 inches or 3 feet from the floor to within one foot of the ceiling. As light is second only to air in importance in sick wards, the proportion of window space to cubic contents should be as nearly possible 1 square foot to 50 cubic feet, which is the proportion adopted in hospitals of the best construction.

It would economise space to place the fire-places in the middle of the wards, with a chimney carried in a trough under the floor to a flue in the wall, and arranged to warm the fresh air which is admitted from the external air by means of the trough on the plan adopted in the wards of the Herbert Hospital, and explained in detail in a report presented to Parliament in the session of 1865.‡

Every ward should have attached to it or should have easy access to—

1. A Nurse's room.
2. A Ward Scullery, with a grate and oven, racks for crockery, a sink for washing up, and table.
3. Waterclosets and a sink for emptying bed pans, placed in a chamber cut off from the ward by a lobby. These chambers and lobbies should have separate through ventilation by means of windows, and an independent supply of fresh warmed air in winter, so as to prevent the smell from the water-closets and sinks from being drawn into the wards in cold weather, they should be closed by means of swing doors. Urinals should be placed in these chambers for the use of those patients who can leave their beds.
4. Bath and Ablution Rooms, with hot and cold water laid on, should be attached to each ward, but cut off from the ward, in the same manner as the water-closets, by a ventilated lobby, and separately warmed and ventilated.

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* This Paper is not published here, as it relates rather to the management than the structural details of a Hospital.

† These grates were invented by Captain GALTON, and they may be seen in use in many barracks and other large public buildings. The Thermhydric Ventilating Grates, recommended by the Author, and illustrated at page 21, had not been introduced at the time Captain GALTON wrote this Memorandum.

‡ A similar arrangement is shewn at page 21.

The following document, issued by the Local Government Board, refers more particularly to buildings proposed to be erected without the Metropolitan area, but it will be found to convey a very good general notion of the requirements of the Board in respect of Metropolitan buildings, as to which no similar instructions have at present been issued:—

POINTS TO BE ATTENDED TO IN THE CONSTRUCTION OF WORKHOUSE BUILDINGS.

1. The following are the several classes of paupers for whom accommodation has to be provided in large workhouse establishments:—

Aged and infirm	Of each sex.	Infants.	
Able-bodied	,, ,,	Aged married couples.	
Harmless lunatics and imbeciles	,, ,,	Probationers	Of each sex.
Sick of all classes	,, ,,	Vagrants	,, ,,
Children	,, ,,		

Classes of Inmates.

2. Whether a workhouse be intended for all the classes referred to in par. 1, or only for a single class, or for a few of those classes, it is essential that there should be complete separation of the sexes, and also as far as may be of classes, and to this end distinct dormitories, day rooms, entrances, staircases, yards, water-closets or earth-closets, lavatories, &c., should be provided for each sex and class.

3. A complete workhouse for a large union will ordinarily comprise the following distinct buildings:—

(*a.*) Entrance building.
(*b.*) Vagrant wards.
(*c.*) Main buildings.
(*d.*) Imbecile wards.
(*e.*) Schools.
(*f.*) Sick wards.
(*g.*) Isolation wards.

Note.—In small workhouses where the number of inmates and officers is very limited some of the above mentioned separate buildings may be dispensed with.

General Arrangement.

4. In arranging the buildings of a workhouse, care must be taken to avoid aggregating large numbers of inmates in any single block, hence it will usually be necessary to sub-divide the several buildings into separate blocks or pavilions.

5. Blocks of buildings should not, except where unavoidable, be directly connected at a right angle, or at an acute angle.

6. Adjacent blocks of buildings should be placed sufficiently far apart to allow free access of light and air, and should also have, where practicable, such an aspect that the direct rays of the sun may pass between them during several hours of the day.

7. No building occupied by inmates as sleeping or day rooms should be erected on the boundary of the premises unless at right angles thereto, or in such a manner that windows and ventilators are not required in the wall resting on the boundary.

8. One room, or a suite of rooms communicating directly with each other, should rarely exceed 100 feet in length.

9. It is desirable that the length of a ward or dormitory should be calculated according to the number of beds to be placed in it, and the requisite amount of wall space per bed, otherwise there might be waste of space and consequent unnecessary expense.

10. The doorways and fire-places of dormitories should also for the same reason be arranged so as to interfere as little as possible with the space that would otherwise be occupied by beds.

11. Dormitories, wards, and day rooms for every class of inmates should be so arranged as to have adequate means of through ventilation, by opposite external windows, distributed throughout their entire length.

12. With the exceptions of infants sleeping with their mothers and of aged married couples, every inmate should have a separate bed.

13. Each bed should stand in the centre of its own allowance of wall space; and, except as hereafter described in par 35, the beds should be placed with their heads against the side walls of the ward or dormitory.

14. In the case of existing buildings, when two rows of beds are placed in a ward 16 feet or less in width, the beds should be placed with their sides to the wall.

The Entrance Building.

15. This building should comprise the apartments for the porter, including a small office, &c., also the vagrant and receiving or probation wards, with rooms for storing paupers' own clothing. The board room and the necessary waiting rooms, clerk's office, strong room, &c., are also ordinarily arranged in connection with this building.

Note.—The vagrant wards do not invariably form part of the entrance building. Where the numbers of vagrants are large it is necessary to appoint special officers to superintend them. A stone yard is also desirable in connection with the male vagrant ward. The vagrant wards should be near the main entrance, as it is inconvenient to allow the vagrants to traverse any considerable extent of the workhouse premises in going to and from their wards. It is further desirable that there should be but one general entrance to the workhouse for all purposes, and that it should be under the immediate supervision of the porter. A weighbridge at the entrance to the workhouse is generally found desirable.

Vagrant Wards.

16. Vagrant wards may be arranged as associated wards or on the separate cell system.

Note.—It is convenient sometimes to provide for vagrants on both the above systems. The separate cell system being obviously more costly of construction can be adopted for the ordinary number of vagrants, while the less expensive associated wards can be provided for any occasional excess of vagrants; or where associated wards are chiefly provided a few separate wards may be found convenient for those vagrants whom, from their habits and manners, it may be desirable to isolate from the others.

17. Associated vagrant wards should be 18 feet in width and 12 feet in height.

18. Vagrants must not be made to sleep upon the floor.

Note.—Where ordinary bedsteads are not used the wards should be fitted with sleeping platforms or hammocks, the former being made of planks, either moveable or otherwise arranged so as to allow of cleaning the floor beneath. The platforms should be divided into compartments 3 feet wide in the clear by boards 12 inches in height above the level of the pillows, every alternate division board in the female ward being made capable of removal by the attendant so as to accommodate women with children. The length of the compartments should be 6 feet 6 inches for males, and 6 feet for females. Stout canvas, or cocoa-nut matting bound with leather, forms excellent and cheap material for hammocks.

Vagrant Wards on the Cell System.

19. Vagrant wards on the separate cell system should provide accommodation of two kinds.

(*a*) Ordinary cells to hold one person each.
(*b.*) Cells for women with children.

An ordinary sleeping cell must have:—

A minimum width of 4 feet.	A minimum floor space of 36 feet.
A minimum average height of 10 feet.	A minimum cubic space of 360 feet.

A separate cell for women with children must have:—

A minimum width of 5 feet 6 inches.	A minimum floor space of 54 feet.
A minimum average height of 10 feet.	A minimum cubic space of 540 feet.

Note.—It will be found in order to meet all the requirements that the most convenient dimensions for separate cells are—

Length	8 feet.
Width	4 feet 6 inches.
Height (average)	10 feet.

And for cells for women with children—

Length	8 feet.
Width	6 feet 9 inches.
Height (average)	10 feet

20. Provision must be made for bathing the vagrants and for the supply of hot and cold water.

Note.—When the total number of vagrants of both sexes does not exceed seven or eight one bath room will suffice, if provided with separate and suitable means of access for males and for females.

With larger numbers there should be a separate bath room for each sex, and baths should be provided at about the rate of one for every seven or eight vagrants.

The apparatus for heating the water for the baths may conveniently be arranged so as to warm the cells by means of distinct pipes in connection with the boiler. These pipes should be carried through each cell about 6 inches above the floor near the external wall, so as to warm the air admitted by the air bricks, and should have a suitable valve or stop-cock for shutting off the hot water from them when not required.

Lavatory basins should be provided in the same proportion as the baths.

Arrangements should be made for a sufficient supply of drinking water in the cells or wards.

21. Sleeping cells and wards must be so arranged that they may be reached from the bath room without passing through the outer air.

Note.—In the case of cells they should be arranged on one or both sides of a corridor which though enclosed should be thoroughly well ventilated by means of louvres in the roof and windows where practicable. This corridor, which should communicate with the bath room, attendants' room, &c., must, if there be cells on both sides, be at least 4 feet wide, and if on one side only, at least 3 feet 6 inches in width. The opposite end wall of the cells is required to be either partially or wholly an external wall in order that air bricks and windows or ventilating gratings (*see* par. 22) may be inserted in it.

22. Provision must be made for the constant through ventilation of the cells when occupied, and also for thoroughly airing them when empty.

Note.—The cells must have at one end an external wall in which openings can be made for ventilation.

The simplest method of obtaining constant through ventilation at night is to provide an air brick in the external wall of each cell at the floor level, and a grating at least 12 inches by 9 inches high up in the corridor wall. The air bricks should be covered on the inside with finely perforated zinc, and in order to break the force of the wind in exposed situations the inner opening should be placed either above or below or to one side of the outer one.

In order that the cells may be thoroughly well aired during the daytime in all weathers a swing window 18 inches by 24 inches should be provided high up in the external wall of each cell. The fastenings of these windows should be under the sole control of the attendants, the windows being opened only when the cells are unoccupied.

Where the number of sleeping cells is considerable the windows should be arranged so that several of them may be opened or shut simultaneously by means of a rod with a crank attached to each sash.

When there exists any strong objection to the small windows above recommended, the cells may be lighted by means of fixed skylights or glass slates; but ventilating gratings at least 20 inches by 15 inches must then be provided in the external wall in place of the windows. These gratings must be capable of being closed at night.

Ventilating skylights are objectionable as they cannot be opened in wet weather and are rarely water-tight when shut.

23. The division walls between the cells must be sufficiently solid to prevent communication between the occupants. Wood partitions are inadmissible.

24. Proper provision must be made to enable the vagrants in separate wards or cells to relieve the wants of nature.

Note.—The most satisfactory method of meeting this requirement is to provide in each cell an inexpensive sealed night stool, earth commode, or other approved contrivance of the kind. (A w.c. apparatus is inadmissible.) There will then be no excuse for any vagrant calling for the attendant except in case of illness or other unforseen emergency. If the above suggestion be not adopted, closets must be provided, and the attendants must be ready to take vagrants to them at any hour, while chamber utensils will still be required in the cells. If commodes be provided, a suitable place will be necessary for emptying and cleansing them.

25. Provision must be made for the proper superintendence of the vagrants of each sex.

Note.—When the number of vagrants is small, and the cells are conveniently situated, the porter may superintend the males, and, if he be married, his wife the females. When, however, the numbers are large it will be necessary to have separate attendants, and rooms should be provided accordingly.

26. The vagrants must be able to communicate readily with their superintendent.

Note.—A bell should be fixed in the attendant's room, and a pull in each cell or ward, with suitable indicators to show who has rung.

27. Provision must be made for setting the vagrants to work.

Note.—Labour cells, if provided, should be 6 feet in length, about 4 feet in width, and have an average height of not less than 7 feet. They should be provided with a hopper-grid in the external wall, through which the stone when broken should be thrown into a yard outside. They should not therefore be placed against the boundary wall of the workhouse premises. A convenient and economical plan is to arrange the labour cells against the external walls of the sleeping cells, but at a rather lower level, so as to allow of the necessary doorway from the one to the other, and so that the roof of the labour cell may not interfere with the requisite window of the sleeping cell.

Stone-breaking sheds should be divided into bunks about 6 feet deep by 4 feet wide each, by means of partitions about 5 feet high.

The female vagrants may be employed in cleaning the cells, bath rooms, &c., or they may be made to pick oakum, which latter task may be performed in the sleeping cells.

28. Provision must be made for drying and disinfecting the vagrants' clothes.

Note.—Both these objects will be attained by the exposure of the clothes to a dry heat of about 250° Ft., or the clothes may be dried in the usual manner and disinfected by fumigation by burning sulphur. Care is necessary in disinfecting by heat to avoid burning the articles placed in the disinfecting apparatus.

Receiving Wards.

29. Receiving wards should be 10 feet in height, and allow 40 feet of floor space to each bed.

30. The receiving wards should be provided with the requisite independent water-closet, bath, and lavatory accommodation, and should be capable of being warmed in winter.

31. There should be means of communication between the receiving wards and the bath rooms without passing through the outer air.

32. The occupants of the receiving wards should be able, by means of bells or otherwise, to communicate readily with the porter or other superintendent.

The Main Building.

33. This building should contain the accommodation for the adult inmates in health, both aged and able-bodied, also apartments for the master and matron, the general stores, the general dining hall, and the kitchen and various other administrative offices.

Note.—It is important that the apartments for the master and matron should be actually within the administrative block rather than as a detached building. It is convenient to arrange them in view of the main entrance.

34. When the numbers are large, provision should be made, as far as is practicable, for the sub-division of the classes. It is frequently convenient to sub-divide the able-bodied women into two or three classes with reference to their moral character or behaviour, previous habits, or such other ground as may seem expedient.

35. Ordinary wards should be 18 feet in width for two rows of beds, and 10 to 12 feet in height.

Note.—In large workhouses where there are considerable numbers of inmates in health, the wards for that class may be made 36 feet wide, and the beds be arranged in four rows, a dwarf partition about 4 feet high, and about 8 inches off the floor, being fixed between the two rows of beds in the middle of the ward.

36. The following is the minimum requisite amount of space per bed for adult inmates in health:—

	Wall Space, irrespective of that occupied by Doors and Fire-places.	Floor Space.	Cubic Space.
	Feet.	Feet	Feet.
In dormitories	4	36	360
In dormitories for women with infants ...	5	50	500
In dormitories occupied by infirm inmates day and night	5	50	500

37. Day rooms for the inmates in health should be large enough to receive nearly the whole number of their respective classes; 15 feet as a minimum floor space should be allowed to each person in the day rooms of the adult inmates in health.

38. Day rooms and nurseries should be upon the ground floor, unless in the case of aged inmates some other arrangement be deemed desirable.

Note.—It may sometimes be requisite to provide dormitory accommodation on the ground floor for inmates who are too infirm to go up and down stairs.

39. Suitable workrooms should be provided in the respective yards for the adult inmates in health. They should be light, airy, and as spacious as day rooms.

40. A general wash-house and laundry should be provided. It should be a detached one-storey building, with an open roof and louvre ventilators therein. Proper means of keeping the floor dry, and for the protection of the feet of the women while standing at the wash-tubs should be provided. A suitable drying closet is also requisite.

41. The general dining hall should be on the ground floor, and be well lighted, ventilated, and warmed, and convenient of access for the several classes. The ventilation should provide for the complete and rapid removal of the smell of food, &c. after meals. A minimum floor space of 6 feet should be allowed in it for each person.

42. Both the kitchen and the scullery should be conveniently near to the dining hall, and be one-storey buildings with ample means of roof ventilation, and of carrying off steam and the smell of food.

43. Yards for the aged should be enclosed with dwarf walls and palisades where consistent with due classification. These yards should be provided with suitable seats, and with open sheds for shelter in wet or inclement weather.

44. The walls enclosing the yards of the able-bodied should not be of greater height than is necessary for preserving classification and discipline. Ordinarily 6 or 7 feet should be ample.

45. Refractory wards, having a superficial area of not less than 60 feet each, should be provided. They should have boarded floors, and be properly lighted and ventilated, and so arranged that the occupants cannot communicate with the other workhouse inmates. They should be furnished with suitable seats, and means of obeying calls of nature; and they should likewise be provided with means of inspection from without.

Imbecile Wards.

46. The imbecile wards should provide for the ready sub-division of the patients according to their habits and condition, and should be so arranged as to afford the utmost facility for the constant supervision of the patients.

47. As respects ventilation and all arrangements for the comfort of the occupants, they should be regarded and treated as sick wards.

48. The requisite minimum space per head for this class of inmate is:—

	Wall Space, irrespective of Doors and Fire-places.	Floor Space.	Height.	Cubic Space
	Fee.	Feet.	Feet.	Feet.
In dormitories	5	50	10	500
In day rooms	...	20	10	200

49. The stairs connecting the various floors in the imbecile block should be constructed without well holes, and if the stairs are not arranged between two walls, the railings should be carried up to such a height as will preclude the possibility of accident.

50. Dangerous lunatics cannot be retained at a workhouse, but, notwithstanding, it may be convenient to provide a special room having a superficial area of about 63 feet, where a violent lunatic may be temporarily detained until arrangements can be made for removal to an asylum. Proper means of lighting and of inspection from without should be provided. It should either be conveniently near the nurses' room, or an adjoining room should be provided for an attendant.

Schools.

51. When the children are retained at the workhouse the school buildings should be completely separate from and independent of the adults' buildings.

52. They should contain the various dormitories and day accommodation of the children, including covered play sheds sufficient to contain all the children in wet or inclement weather, a dining room, and such industrial workrooms for each sex as will afford facilities for training the boys and girls to some useful employment, and inculcate such habits as will be likely to fit them for their after life.

53. The work rooms should be well lighted, warmed, and ventilated, and be sufficient in extent to prevent any tainting of the atmosphere from the materials employed in industrial training, such as carpentering, tailoring, shoemaking, smith's work, &c.

54. Suitable lavatories and privy accommodation should be provided for the children—the former to contain a hot and cold water supply sufficient to enable each child to wash the face, hands, and upper half of the body at least twice daily—and so arranged that no two children shall wash in the same water.

55. Baths should also be provided for the bathing of every child at least once a week in winter and twice a week in summer.

56. Towel racks, soap stands, and all requisites for the placing of combs and brushes, and of keeping the clothes and boots and shoes of the children dry while they are washing or bathing, should be provided.

57. Watercloset accommodation for 10 per cent. of the boys (together with urinals) and 15 per cent. of the girls should be provided, with access under cover. The seats should be moveable so as to admit of their being cleansed and put in the open air as often as may be needed. The night accommodation should be adjoining and outside the dormitories.

58. The following minimum amount of space should be given per bed in children's dormitories (including infants) :—

Wall Space, exclusive of doors and fire-places.	Floor Space.	Cubic Space.
4 feet if the dormitory is 15 feet wide 3 feet 9 inches if the dormitory is 18 feet wide	36 feet.	360 feet.

Note.—The space for the children is throughout subject to special consideration when a very small number of children, say 10 to 12, are placed in a separate house.

59. It is desirable that the site of the schools should be sufficient to afford ample space for playgrounds for the children, having a sunny aspect, and wherever possible a piece of turfed or meadow land for out-door exercise; and that it should be where air and light can be freely admitted on all sides.

60. Yards or playgrounds for the children should be inclosed with open fencing of stout iron wire, where consistent with due classification; and means should be adopted to keep them dry in wet weather, and to keep them free from injurious dust in dry weather.

61. In the yards and in the play sheds or in rooms specially devoted to such purposes should be provided the means of physical training and exercise for the children, such as swings, parallel bars, ropes and rings, and other simple gymnastic apparatus.

62. School rooms should be 18 feet in width and not less than 12 feet in height, and should afford a minimum floor space of 9 feet for each child, exclusive of such space as may be necessary for purposes of access between the groups of desks, or such space as is from time to time required by the code of the Education Department.

63. The desks should be so arranged as to afford a side light for the children, who should not be placed with their faces or backs to the light. The desks themselves should be so constructed and arranged as to enable the children to work in unconstrained positions, and thus prevent weakness or distortions of the body after long sitting.

64. The doors and fire-places in school rooms should be so arranged as to leave the whole of one side of the room clear for the requisite seats and desks.

65. Where class rooms are necessary they should be additional to school room accommodation, and should be provided to accommodate about one-fourth of the children in the school rooms. They should be fitted up with galleries at right angles to the windows.

66. In addition to the necessary school, class, and work rooms, there should be day room accommodation of at least 10 feet for each child. The day rooms should be upon the ground floor, and possess ready means of access to the playgrounds. They should have boarded floors, and suitable arrangements for warming, and for ventilation both in summer and winter.

67. A training wash-house and laundry should be provided for the girls. It should be a detached one-storey building, having an open roof with louvre ventilators therein, and suitable arrangements for keeping the feet of the children dry while engaged in laundry work.

Sick Wards.

68. The sick wards should, as far as practicable, permit of the sub-division of the patients of each sex into the following classes :—

(*a.*) Ordinary sick :
  1. Medical.
  2. Surgical.
(*b.*) Lying-in women, with separate labour room adjoining the lying-in ward when necessary.
(*c.*) Dirty and offensive cases.
(*d.*) Itch cases.
(*e.*) Venereal cases.
(*f.*) Children.
(*g.*) Infectious fevers (*vide* Isolation Wards).

69. The infirmary should also contain suitable apartments for the nurses, and such kitchen offices as the size of the building and its position relatively to the general kitchen may render necessary.

70. In any case where the number of sick is sufficient to justify a special establishment, it is desirable to arrange the infirmary so as to be under separate management from that of the workhouse wherever it is deemed necessary or advisable.

71. No single infirmary should, as a rule, be arranged for more than from 500 to 600 patients; any such separate infirmary should possess suitable apartments for a resident medical officer, also offices, surgery, and the rooms for the other necessary resident officers, such as matrons, nurses, &c., &c., in such proportions as may from time to time be determined.

72. The itch and venereal wards should be so arranged that the patients occupying them may not come in contact with the other patients. These wards, moreover, should be respectively provided with distinct watercloset and lavatory accommodation.

73. The following minimum amount of space per bed is necessary in sleeping wards :—

	Wall Space, irrespective of that occupied by doors and fire-places.	Floor Space.	Cubic Space.
	Feet.	Feet	Feet.
Wards for ordinary sick	6	60	600
Itch and venereal cases	6	60	600
Wards for lying-in, &c.	8	80	960
Offensive cases	8	80	960
Children	5 if the wards are 20 feet in width. 6 ,, ,, 18 ,,		

74. Sick wards to hold one row of beds only should not be constructed, but in the case of already existing rooms when appropriated to the sick they should have a width of at least 12 feet, the gangway and fire-place being if possible on the side opposite the beds.

75. Day wards for the sick should afford accommodation at the rate of 20 feet superficial of floor space per patient for not less than one half of those who occupy the day and night wards.

76. Day wards should ordinarily be upon the ground floor, and should have ready communication with the airing yards, but in large infirmaries some day room accommodation should also be provided on the upper floors for those who are unable to get up and down stairs.

77. Sick wards should be 20 feet in width if the fire-places are at the side or in the end walls; and 24 feet in width if they are in the centre. They should be from 10 to 12 feet in height.

78. In the case of small infirmaries a room or suite of rooms may be connected with a similar suite in the same line by the central part of the building in which would be placed the apartments of the nurses and other officers.

79. The walls of all sick wards should be plastered internally with some hard and non-absorbent plaster, or should be painted to a height of 6 feet with some material which can be thoroughly washed and purified without vacating the ward.

80. Yards for the sick should be enclosed with dwarf walls and palisades where consistent with due classification. They should be furnished with seats and covered places of refuge in wet weather.

81. In the cases in which hot water is not laid on or very near to sick wards the grates should be provided with self-feeding boilers of adequate size.

Isolation Wards.

82. The isolation wards for fever, small-pox, or other infectious cases, if at the workhouse, may sometimes be constructed of a temporary character. They should be so placed as, with ordinary precautions, to preclude the possibility of the spread of infection from them to the other parts of the establishment. It is further desirable that where practicable the building should contain distinct accommodation for the safe treatment of at least two different kinds of infection.

Note.—In regard to the provision for isolating cases of infectious disease at workhouses, it should be considered whether arrangements can be made for the reception of paupers suffering from any such disease into some local public hospital for the purpose, or into the hospital provided by the Sanitary Authority under the provisions of the 131st section of the Public Health Act 1875, the provision at the workhouse being in that case limited to such accommodation as may be necessary to the treatment of any cases that may arise there or may be accidentally brought there.

83. The space per bed in wards for infectious cases should be at least as great as that required for offensive cases, and the ventilation as complete in summer and winter as can be possibly attained.

84. Adequate means of disinfecting linen, clothes, bedding, &c., should be provided at a convenient distance from the isolation wards, and a detached wash-house for washing infected linen, &c., should also be provided.

General.

85. Suitable store rooms for linen and clothing of the several classes of inmates and for dry and other goods should be provided in convenient situations. These should be properly lighted and ventilated.

86. A suitable dead-house should be provided. It should be a detached one-storey building with ample ventilation at the roof as well as at the sides.

87. Special means of ventilation, apart from the usual means of doors, windows, and fire-places, should be provided, and so arranged that each ward may be brought into constant communication with the outer air. No plan is recommended for universal adoption. One of the simplest methods is the use of air bricks 9 × 3 or 9 × 6 inches covered on the inside with finely perforated metal in moveable frames (the perforations being about $\frac{1}{10}$ of an inch in diameter) inserted about 8 feet or 10 feet apart in the upper and lower parts of the external walls (that is, at the floor level and immediately under the wall plate), by which means only a small body of air would be admitted in one place, and it would be so diffused as to prevent strong draughts. No permanent means of closing the upper set of ventilators should be provided, but the lower set may be fitted with hit and miss gratings made to lock so that they may be regulated by the proper authorities. The outer opening should be placed a little above or below or to one side of the inner one, the two being connected by a flue or shaft. Ventilating fire-places, providing when in use a constant supply of warmed fresh air, are found to be very useful. It is very desirable that where hot-water pipes are used they should run round the wards, and be so arranged that a portion of the fresh air admitted into the room may pass over them and so be warmed.

88. Arrangements should be made for the distribution of hot and cold water where necessary in the quantities needed for all purposes. Care should be taken to place the cisterns so as to be easy of access for inspection and periodical cleansing; and the pipes where the water in them will not be likely to be affected by frost.

89. Where no other system of warming is adopted fire-places should be provided in all inhabited rooms. As a general rule wards 30 feet or less in length require one fire, 30 to 60 feet in length two fires, and so on: the fire-places in the dormitories being arranged so as to interfere as little as possible with the bed space, and those in the day rooms being placed so that the inmates may sit round them without being exposed to draughts from the doors.

90. External windows should be filled in with double hung wooden sashes, and should extend to within 1 foot of the ceiling, and to 3 feet or 3 feet 6 inches from the floor of the ward. They should ordinarily be placed about 8 feet or 10 feet apart from centre to centre. Windows are not to be glazed with ground or opaque glass except for special reasons to be approved by the Local Government Board.

91. Waterclosets, earthclosets, and slop sink closets in connection with buildings should be placed in projections from the building with an intervening lobby between them and the adjoining rooms. External windows arranged so as to ensure thorough cross ventilation should be provided in this intervening lobby as well as in the closets themselves.

92. Drains from buildings should be constructed of glazed stoneware pipes not less than 4 inches in diameter laid in direct lines, and with uniform gradients between the points where they change direction, with water-tight joints, and man-holes or lamp-holes for inspection at the points of junction or change of direction. The soil pipes of waterclosets and slop sinks should be of lead, and not less than 4 inches in diameter, and should be fixed outside the building and carried up without diminution of diameter in such a manner as to allow a safe outlet for drain air.

93. No drains should pass under any building, but all drains should terminate outside the buildings, and the waste pipes from sinks, lavatories, and baths, the overflow pipes from cisterns, and tanks, &c., should be taken through the external wall into the open air and discharge visibly on to a surface channel leading to a trapped gulley grating at least 18 inches distant. Special care must be taken to ensure the proper ventilation of the drains, and also to preclude the entry thereto of sewer air. For this purpose a suitable trap must be provided in the drains as near to their outfall or junction with the public sewer as possible, and a suitable and sufficient opening for ventilation should be provided in the drains immediately above this trap, a second opening being also provided at the highest point in the drains. Other intermediate openings for ventilation may also be provided, but if suitable inspection holes are formed as suggested in par. 92 they may ordinarily be made to answer the purpose. Means of flushing the drains by the discharge of a body of water at the head of the drains should also be provided.

94. Glazed stoneware or enamelled iron slop and waste water shoots should be provided in suitable positions on the bedroom floor of all large workhouse buildings.

95. The sewage of the workhouse premises, whether or not it contain matters from waterclosets, should be conveyed whenever possible into the public sewer. If this cannot be done it should be carried into impervious tanks placed at such a distance from inhabited buildings as to preclude any nuisance. The tanks must be properly ventilated, and have arrangements for the delivery of their contents at frequent regular periods to properly prepared ground. So far as waterclosets are not in use, the excremental matters may be disposed of on the dry earth system, or, in the case of closets outside buildings, may be received into a pail under the closet seat, and be afterwards applied to properly situated land.

Note.—It must be understood that the application of sewage to land and the collection and disposal of excremental matters on the dry earth system require that certain appliances for them should be provided and maintained, and that certain service requisite for keeping them free from nuisance shall be regularly supplied; and no plan for thus dealing with sewage or excrement is admissible except on condition that the necessary appliances and service must be provided. The earth used must be garden mould, containing organic matter, and be properly dried and sifted. All excrementary matters applied to the land must be so disposed of before putrefaction has commenced.

96. In addition to the ordinary means of water supply to the workhouse, the rain water from the buildings should be collected in covered tanks conveniently placed for the purposes of the wash-houses. It may be desirable to provide means of filtering the rain water.

97. The airing yards for all the classes of inmates should have the best practicable aspect. If the yards are partially or wholly paved with stone or brick, or asphalted or gas tarred, it will frequently be found preferable to a covering of gravel. All yards should be formed so that the water may readily pass off into the drains. Airing yards should be drained to channels and gratings at the sides, so as to leave the centre space free for use.

98. The external walls of all buildings of two or more stories in height, and of one-storey sick wards and school rooms, should, if of brickwork, be not less than 14 inches thick, and if of stone, not less than 18 inches thick.

99. A proper damp course should be provided in the walls of all new buildings, slightly above the level of the ground adjoining the walls, and below the floor-timbers. In some cases it may be desirable to construct the external walls hollow.

100. The staircases should be constructed as "return staircases" 7 feet in width, and have stone stairs $3\frac{1}{2}$ feet wide. The stairs should be supported on iron strings, or be properly tailed into the walls, and the landings supported on iron girders. All the steps should be "flyers," none exceeding 7 inches rise, and those to the wards of sick and children not exceeding $6\frac{1}{2}$ inches rise. Steps of the former rise should have 10 inches tread, and of the latter rise 11 inches tread.

101. The floors of inhabited rooms should be boarded, and the boards tongued and grooved; the floors of watercloscts, bath rooms, and lavatories may be similarly floored, or may be paved with tiles or some other form of washable and impervious floor, in which case wooden gratings to stand upon are indispensable.

102. All sleeping rooms should be ceiled at the level of the wall plate.

103. The timber used in the construction of workhouse buildings should be Baltic fir and English oak, properly seasoned.

104. Means of escape in case of fire should be most carefully considered.

105. The plans, sections (longitudinal and transverse), and elevations for new workhouse buildings, or for alterations to existing buildings, are to be drawn to a scale of $\frac{1}{8}$th of an inch to a foot, unless from the extent of the intended buildings the use of this scale would render the size of the plans inconveniently large. They should show in addition to the usual details the proposed number and position of the beds in the several wards, and should be accompanied with a general plan drawn to a scale of $\frac{1}{16}$th of an inch to a foot of the entire premises (exclusive of the intended agricultural land), showing the site of the proposed works, the course of the drains and their outfall, and the position of any intended sewage and water tanks. Further, figured dimensions should be given, the points of the compass should be clearly indicated, and the specification of works, and also a description of the general system of heating and ventilation, should accompany the plans.

106. All plans of new buildings should be submitted in sketch outlines to the Local Government Board before detailed plans and drawings are prepared, so that all defects of construction and arrangement may be duly considered and detected before any expense in the preparation of complete plans has been incurred.

Local Government Board,
Whitehall, March 1880.

The following Letter, addressed to the Clerks of the Guardians of the Poor, will be found to convey the wishes of the Local Government Board as to the drainage of Workhouses and other Poor Law Buildings:—

Local Government Board, Whitehall, S.W.,
11th August 1880.

SIR,—I am directed by the Local Government Board to state that they have had under their consideration the reports made from time to time by their inspectors regarding the system of drainage in operation at various workhouses and other poor law institutions, and it is evident to them that in many instances the arrangements in this respect are not as satisfactory as could be desired.

The Board find that, while in many cases the drainage is conveyed direct into the public sewers, there are numerous examples in which it is collected in cesspools, and moreover that the contents of these cesspools are frequently allowed to escape either by soakage into the ground or by overflowing and discharging into a ditch or a pond or a stream.

In reference to arrangements of this character the Board deem it right to point out that, if existing in an urban sanitary district, they would be in contravention of the 47th section of the Public Health Act 1875, which enacts that:—

"Any person who in any urban district . . . . . .

"(3.) Allows the contents of any watercloset, privy, or cesspool to overflow or soak therefrom, shall for every such offence be "liable to a penalty not exceeding 40s., and to a further penalty not exceeding 5s. for every day during which the offence is "committed."

Although this enactment relates only to such cesspools as are within an *urban* sanitary district, it would nevertheless be very desirable, for sanitary reasons, that, even when the workhouse is situated in a *rural* sanitary district, every effort should be made so to deal with the sewage that it shall not pollute the soil in a manner that would be illegal in an urban sanitary district. Moreover, the flowing of sewage into streams and watercourses is prohibited in rural as well as in urban districts by the Rivers Pollution Prevention Act, 1876.

In view of the considerations above referred to, the Board think it may be of use to point out a few general principles to be observed in regard to the disposal of sewage from workhouse buildings.

They would first observe that cesspools should never be allowed to exist if sewers are within an accessible distance.

The 21st section of the Public Health Act, 1875, authorises the owner or occupier of any premises to drain such premises into the sewers of the district, and the 23rd section gives power to the sanitary authority of any district to require the owner or occupier of any premises which are without a drain sufficient for effectual drainage to make a suitable drain and connect it with the public sewer, provided such sewer be not more than 100 feet distant from the site of the premises.

If cesspools are rendered necessary by the absence of other proper outfall for drains, it is most important that they should be made absolutely water-tight, and be so situated as to be out of the line of the natural drainage of the locality, and as not to endanger the wells, or other sources of water supply. They should also be so far distant from buildings as to be incapable of becoming a nuisance to the inmates. Moreover, they should be so placed as to allow of their contents being periodically removed and applied, where practicable, to land under cultivation.

If there are no sewers available and the circumstances of the locality will permit, it may be possible to dispense with cesspools altogether, and to deal with solid excrement on some dry system, and apply the slop drainage direct to land by way of irrigation. Care, however, must be taken that the land to be irrigated is of adequate size, and possesses the requisite fall, and is itself capable of being drained; and whenever the dry-earth, pail, or ash system for excrement removal is used, it is indispensable that a regular system of superintendence and removal should be organized and rigidly carried out.

Where drains are connected either with public sewers or with cesspools, it is essential that means should be taken for preventing sewer-air or cesspool-air from ascending into the drains of the building. This may be effected by a water-trap in the drain at a point near to the sewer or cesspool, with an opening for ventilation on the side of the trap nearest to the workhouse buildings. Such opening may often be in the form of a man-hole giving access to the drain.

With regard to the ordinary drains themselves, which should be formed of impervious pipes, they should in no case whatever pass under or be within any building.

If surface water has to be conveyed away from the floor of any building, such as a wash-house for example, it should pass by means of surface channels to gully gratings outside. In the same way every pipe for carrying off waste water, whether from a bath, lavatory, or sink, or the overflow pipe from a cistern, should be taken through an external wall and discharge visibly in the open air over a channel leading to a gully grating outside communicating with the drains.

The drains should be laid in direct line and uniform gradient between the points where they change direction or gradient, and at these points it is convenient to provide means of access to the drains for the purpose of inspection or cleansing.

Ample means of ventilating the drains of the building by suitable openings at their lower and upper extremities, and of flushing them, should be provided.

The soil pipe from any watercloset should always be outside the building, and be continued up beyond the point of junction with the highest closet, and without diminution of diameter, to some point where it will afford a safe outlet for drain-air.

Where privies of any kind are in use, much care and attention is needed to prevent them from becoming a nuisance. They should be so arranged as to avoid any considerable accumulation of filth during a lengthened period. Hence, the size of the receptacle or pit beneath the seat should be strictly limited, and the filth should be removed therefrom at regular and frequent intervals. Ordinarily, a very moderate capacity should suffice for the receptacle, when fixed, of each privy, whilst if the receptacle be moveable, such as a tub or pail, a capacity of more than two cubic feet would be inconvenient. Where fixed receptacles are in use, they ought under no circumstances to be sunk in the ground, but should rather be raised at least three inches above the level of the adjacent ground, and the floor and sides should be made of stone-flagging or other non-absorbent material. The privy receptacle should be so arranged that under no circumstances whatever would rain-water be allowed to enter it, and of course no slop water should be emptied into it.

The Board request that the foregoing remarks may receive the attention of the Guardians in so far as they are applicable to the buildings over which they have control.

I am, Sir,
Your obedient Servant,

The Clerk to the Guardians. JOHN LAMBERT, *Secretary.*

The following extract from a Memorandum issued by the Local Government Board will be useful to authorities considering the arrangements of Hospitals for Local Infectious Disease :—

A large part of the mortality of England is caused by diseases which spread readily by infection from person to person, such as scarlatina, typhus, small-pox. In order to prevent the extension of such diseases in neighbourhoods where they have begun, it is of the utmost importance that, in addition to whatever other sanitary measures may be requisite, every practicable endeavour should be made to SEPARATE THE SICK FROM THE HEALTHY. Such separation is comparatively easy, if means to attain it are taken early, while cases of the disease are very few; but any interval of delay allows the cases of sickness to multiply, and perhaps at last to become so numerous that endeavours to isolate them cannot succeed. These considerations are especially important with regard to the poorer classes of the population, whose usually crowded and ill-ventilated dwellings give extreme facilities for infection; and among these classes, the sick, generally speaking, cannot be separated from the healthy, except in proportion as they can be removed from home into proper hospital accommodation provided for their reception.

Under the 131st section of the Public Health Act, 1875, every Sanitary Authority (whether Urban or Rural) has power to provide "for the use of the inhabitants of their district, hospitals or temporary places for the reception of the sick." When this provision has been made, any Justice may order the removal to such place of any person suffering from any dangerous infectious disease, if he is without proper lodging or accommodation, or lodged in a room occupied by more than one family, or is on board any ship or vessel.

The present Memorandum is intended for the assistance of Sanitary Authorities, who having to secure the isolation that is needed for cases of dangerous infectious disease, but not yet having the requisite hospital accommodation within their districts, desire to provide such accommodation under the powers of section 131 of the Public Health Act, 1875, or otherwise.

A condition of the highest degree of importance for the usefulness of any such accommodation is, that the accommodation SHALL BE READY BEFOREHAND. The quantity of accommodation wanted will, of course, be widely different in different cases; but it must always be remembered that when two infectious diseases are prevalent in one place at one time, patients having the one infectious disease cannot properly be in the same ward with patients having the other infectious disease. In kind, the accommodation ought, in all cases, to be as good as the authority can reasonably supply. It is believed, however, that, even under these conditions, the costs of providing hospital accommodation, whether for villages or for towns, need not ever be proportionately great.

As regards VILLAGES,—Each village ought to have the means of accommodating instantly, or at a few hours' notice, say, four cases of infectious disease in at least two separate rooms, without requiring their removal to a distance. A decent four-room or six-room cottage, at the disposal of the authority, would answer this purpose; or permanent arrangement might be made beforehand with trustworthy cottage-holders, not having children, that they should receive and nurse, in case of need, patients requiring such accommodation; and small adjacent villages (if under the same Sanitary Authority) might often have such arrangements in common. If, in villages where such provision as this has been made, cases of disease in excess of the accommodation occur, the sick must not be crowded together, but temporary further provision should be made for them. The most rapid and the cheapest way of obtaining this further accommodation, may often be to hire other neighbouring cottages; or, in default of this, tents or huts may be erected upon adjacent ground.

In TOWNS, hospital accommodation for infectious diseases is wanted more constantly, as well as in larger amount, than in villages; and in towns there is greater probability that room will be wanted at the same time for two or more infectious diseases which ought not to be treated in the same ward. The permanent provision to be made in a town, in order to obtain reasonable security against the spread of infectious diseases, should consist of not less than four rooms, in two separate pairs; each pair to receive the sufferers from one infectious disease, the men and women of course separately. The number of cases for which permanent provision should be made must depend upon various circumstances, chiefly upon the size of the town; and, as no closely limited amount of permanent accommodation can be trusted always to suffice for the requirements of considerable epidemics, foresight must from the first be used, how, in emergency, additional accommodation can be temporarily given, to meet requirements in excess of the permanent provision. Accordingly, for a town of any importance, the hospital provision ought to consist of a permanent building, having around it space enough for the erection of temporary structures, as occasion may require. Considerations of ultimate economy make it wise to have the permanent building equal to somewhat more than the average necessities of the place, so that recourse to temporary extensions may less often be wanted. In small towns, for instance, if a hospital, consisting of four wards and the necessary administrative offices, is to be provided, the original expense of making each ward serve for (say) eight persons, will be far less than double that of making the wards for four. And in any case it is well to make the administrative offices somewhat in excess of the wants of the permanent wards; because thus, at little additional first cost, they will be ready to serve, when occasion comes, for the wants of the temporary extensions.

It is not proposed to discuss in detail, in this Memorandum, the principles on which permanent hospitals for infectious diseases should be built; but it may be noted, that, in order to the practical success of any such hospital, the following conditions have particularly to be studied :—

Accessibility of situation, so that the sick may not be exhausted by long journeys; *wholesomeness of situation*; and, as far as consists with these conditions, *an open, uncrowded neighbourhood*:

Adequate ward-space for each patient, approaching as nearly as circumstances allow to 2,000 cubic feet, with a floor space of not less than 144 square feet:

Thoroughly good provision for ward ventilation (*i.e.*, for sufficient *unceasing* entrance of pure air and of exit of ward air), with arrangements also for immediate change of air in the whole ward, when necessary:

Perfect security *against the possibility of any foul air* (as from privies or sinks) entering any ward:

Means of *warming* each ward in winter to a temperature of 60° Fahrenheit, and of keeping it cool in summer:

Safe means (safe both for the hospital and for the neighbourhood) for disposing of *excremental matters and of slops*, and for cleansing and disinfecting *infected linen and bedding*:

Facilities for obtaining, in the use of the hospital, the *very strictest cleanliness* of every part.

When the pressure of a particular epidemic requires temporary extension of the accommodation, or when, the provision of a permanent hospital having been neglected, accommodation for cases of infectious disease is suddenly required, *Huts*, or, in summer, *Tents*, will sufficiently answer the purpose.

The *Tents* may be either such as the Bell Tent or Hospital Marquee of Her Majesty's Army, or one of the various forms of tent and marquee used in civil life. *Huts* may be of wood or iron; and, if the administrative part of the original building have been thoughtfully

devised, these temporary erections may be of very simple construction. Both tents and huts need to be carefully arranged and regulated, especially in the following respects:

As to Tents.—It is essential to secure the dryness of the ground upon which they are pitched, by trenching around and between them, so as to carry off all rainfall and prevent the lodgment of moisture. The tents should everywhere be distant at least a diameter and a half from each other. The approaches should be paved or otherwise prepared, to prevent their being trodden into mud in wet weather, and it is especially requisite that abundant proper means be provided for the reception of refuse matters, and that no casting of slops or other refuse upon the ground in the vicinity of the tents be allowed. In the distribution of patients in active stages of disease, not more than one patient should be assigned to a bell tent of the ordinary regulation size, nor more than three such patients to the regulation hospital marquee;* and in other forms of tents the number of patients should be regulated in similar proportions. Tents should always be provided with special ventilating openings. They should have boarded floors, raised sufficiently above the ground so as to allow of air passing freely beneath. From the ready inflammability of the ordinary canvas of which tents are constructed, much care is required in the use of lights in tents: and tents should not be used in states of weather which render artificial warming necessary, if sufficiently rapid provision for the isolation of the sick can otherwise be had. The safest method of warming a hospital marquee is by a flue carried beneath the floor, from a stove placed in an excavation outside the tent to a chimney also beyond the tent wall.

As to Huts.—Dryness of site is, as in the case of tents, of the first importance. Each hut should be trenched round. Its floors should be raised a foot or a foot and a half from the earth, so as to permit the free under passage of air; but care must be taken to prevent the lodgment of moisture or impurities beneath the floor. In some cases a layer of concrete under the hut may be necessary to prevent dampness. A distance not less than three times the wall-height of a hut should intervene between any two huts, and each hut should be so placed as not unnecessarily to interfere with free circulation of air round other huts. In huts, as in permanent buildings for the treatment of infectious diseases, 2,000 cubic feet, with 144 square feet of floor, is the standard of space that should be allowed to each patient. The ventilation of huts, also, is of equal importance with that of permanent hospital buildings. It is best secured by the combination of side-windows with roof-opening, the latter protected from rain, and running the whole length of the ridge of the roof. The side-windows should not be of less size than ordinary house-windows; they must freely open top and bottom, and for this purpose had best be sash windows; they should be placed in similar series on opposite sides of the wards, one window between each pair of beds. The ventilating opening beneath the ridge may have flaps, moveable from within the hut by ropes and pulleys, so that the opening to windward can be closed, if necessary, in high winds. Double-walled wood huts may have additional ventilation by the admission of air between the outer and inner walls, and its passage into the interior of the hut through openings with moveable covers at the top of the inner lining. The roof should be covered with waterproof felt; the edges of the felt fastened down by strips of wood, not directly by nails. The hut should be warmed by open fire-places, fixed in brick stove-stacks, or by open stoves placed in the centre of the floor, the flue being carried through the roof, with all the needful precautions to guard against ignition of the wood-work.

The *Sewerage* and *Scavenging* arrangements both of Tents and Huts demand very careful consideration. When the tents or huts are placed within the area of a public system of sewerage and water supply, no difficulty will arise; for drains may be laid into the public sewer, and waterclosets may easily be adopted. But where no system of sewerage exists, the disposal of excremental matters and other refuse will require special provisions. In regard to excremental-disposal under such circumstances, the best method to adopt is the Dry-Earth system, or, failing this, a Pail system, with careful arrangements for the disinfection and subsequent disposal of the excrementitious matter. All slops and other refuse should be deposited in metal pails, to be removed from the tents and huts at frequent intervals, and should be so disposed of as not to become a nuisance. Too much attention cannot be given to the careful scavenging of tents and huts, and to the proper disposal of the refuse from them; and the servant or servants to whom the duty is assigned (as indeed all service which concerns the cleanliness and wholesomeness of the hospital) should be under very vigilant supervision.

The following is an Extract from the "General Report of the Commission appointed for Improving the Sanitary Condition of Barracks and Hospitals," published A.D. 1861. It contains many valuable suggestions as to the details for properly constructed Hospitals not touched upon in the preceding Papers.

Preparation of Site.—The first thing to be done, after selecting a proper site, is to prepare the ground by thorough drainage wherever it is required. This drainage should include the whole area within the hospital enclosure. If the building be intended for a regimental hospital, the whole barrack enclosure should be drained. Drain tiles laid 4 feet under the surface, and at such distances as are required by the nature of the soil, will keep the ground free of subsoil water, and the surface of the exercising area firm and dry.

Wherever the ground on which the hospital is to be erected has sloping ground above it, care should be taken to cut off the surface and subsoil drainage of the higher ground, and to convey it away from the hospital enclosure.

There is no reason why the convalescents' ground should not be properly laid out and well kept. In the Crimea the men themselves took a pride in planting flowers and shrubs within the hospital inclosure, and in keeping the walks and borders neat. The enclosures of hospitals at home are more like poultry yards than places for convalescents to take exercise in for health. Some of them are even in so bad a condition as to be unfit for such a purpose. This should not be so. If a beginning were made, the men would soon find sufficient labour to carry on the work.

All the walks should be gravelled on a good, well-drained foundation, and properly rolled. There should be no rough pitch paving allowed within the hospital inclosure. Well laid square setts are alone permissible. They turn off the surface water readily, which rough paving does not. The space round the hospital walls and footpaths used for communications should all be well flagged, and the flags should be sloped to throw the surface water coming from the buildings away from the walls into carefully formed smooth guttering, to be conveyed to trapped gulleys communicating with the general system of hospital drainage.

Enclosure.—The hospital should never be enclosed in high walls, except the ground be large and the walls sufficiently removed from the buildings to prevent stagnation of air. Otherwise, dwarf walls and high railings are better.

Basements.—There should be no sunk basement under the wards, except to isolate them from the soil, and such basement should be arched, well ventilated and drained, and should not communicate with the wards. This precaution is necessary to cut off damp and malaria. There may be basements in the administration provided they be dry and well ventilated.

Number of Stories.—No hospital should be above two stories high.

Approaches to Wards.—In all hospitals where the wards are placed end to end there should be a wide roomy passage, going right through the building with a door front and back, and a good wide staircase also occupying the whole breadth of the building. All passages and stairs should of course bear in their dimensions a proper proportion to the size of the building. Staircases should generally be of well form, and should have ventilating lanterns or skylights above, so that a free circulation of air may at all times pass upwards between the two divisions of the pavilion or hospital.

All the approaches to the wards should be fire-proof and covered with wood. Where the access is by corridors these should also be incombustible, the floors being covered with wood or tiles.

Simplicity of Construction.—Simplicity in the internal construction and arrangement of all hospitals is essentially necessary. There should be plenty of light everywhere, and the atmosphere should move easily throughout the building.

Useless ornament is quite out of place in a hospital. It costs money. It is liable to damage. It harbours dust, and requires extra time in cleaning. But time is everything for the sick. The less of it spent in dusting ledges and reaching cornices where dust settles, in

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* *Regulation Bell Tent.*—Diameter, 14 ft.; height, 10 ft.; area of base, 154 square ft.; cubic space, 513 ft.
Regulation Hospital Marquee.—Length, 29 ft.; width, 14 ft.; side walls, 5 ft. 4 in.; height to ridge, 11 ft. 8 in.; area of base, 396 square ft.; cubic capacity, 3,366 ft.

polishing or handling with precaution things which must be handled at all periods every day, the more time will there be for the real care of the sick, and for the real cleanliness of the helpless among them, as well as of the ward itself. Everything in a military hospital should be strong and simple. There should be no luxury of contrivances. Orderlies, patients, and nurses will have to do with remote hospitals, and occasionally with war hospitals, where these things are unobtainable. Simplicity, and real unexaggerated comfort are what are required. A sick soldier's idea of hospital comfort is not that of a civilian, and it is important that this distinction should be observed. The soldier passes from the ranks to the hospital, from which he again passes to the ranks should he survive and be fit for duty. Certain things are nevertheless necessary for both health and economy, but they are not luxuries.

Ceilings and Walls.—All wards in permanent hospitals should have ceilings. The roof space should not be taken in and counted as ward space.

The ward walls and ceilings of all hospitals should consist of white cement, highly polished. Grey coloured cements give the hospital a dirty appearance and are not suitable for the object in view. They should not be used. A highly polished surface is absolutely necessary in all cemented walls. The object is to have surfaces which will absorb sick miasms as little as possible, and which admit of being thoroughly cleansed with soap and water. A brick or plaster wall, limewashed frequently, is better than an unpolished cement wall, unless it be also frequently limewashed.

Floors.—The ward floors should be of some hard durable non-absorbent wood. Oak floors are the most durable. Teak would also answer. Pine wood is too soft and never makes anything but an imperfect floor. Hard wood floors are the cheapest in the end. They should be well seasoned, and carefully laid, with the joints impervious to moisture. They require polishing with wax or lacquer.

Pine floors generally require dry rubbing to keep them clean. It is a laborious and unsatisfactory process. Washing is inadmissible unless under the orders of the medical officer. Pine floors may be waxed or lacquered, but an easy and economical method of keeping a good surface on hospital floors is still a desideratum.

The "*frottage*" of the French hospital is too laborious. The "*laque lustre*" of the Berlin hospitals is much easier to keep clean, but it is not durable enough. A simpler method than these, though not so good as either, is to rub the floor with bees-wax dissolved in turpentine, allowing it to sink into the wood; then to wipe off the superfluous wax and to rub the floor with a cloth, afterwards with a brush, and then to polish by brisk rubbing with a duster. This process requires to be repeated twice or thrice a week to keep the floor in good condition, but it is not laborious.

The space between the flooring of the ward above and the ceiling of the ward below should be filled with some substance, to prevent noise passing from ward to ward; but no decomposable matter should be used for the purpose. Incombustible floors if properly made will prevent the transmission of noise.

Doors.—Doors opening into or out of wards should be of hard polished wood. The upper half of the doors should be of glass, except in lunatic, noisy, and other small wards. Half-glass doors afford great facilities for oversight and discipline. Lunatic and noisy wards should have a properly-secured opening, through which they can be inspected without opening the doors.

Windows.—Ward windows should be of plate glass not less than one-eighth of an inch thick. It is necessary in the construction to provide a large extent of window surface, which with thin glass windows would occasion much loss of heat and too rapid alterations of temperature. But it is possible to secure both objects, namely, light and warmth, by the expedient mentioned.

Ventilation.—A well-constructed ward can always be ventilated by a proper use of the windows; but where wards are limited in *height*, which is an important element in ward ventilation, ventilating shafts and inlets should be provided in the walls.

The number of shafts and inlets should depend on the number of beds. One shaft and one inlet for every four or five beds would be sufficient.

Perhaps the best arrangement of these shafts would be to carry one up in the wall from the ceiling over the middle of each alternate wall space, and to place the inlet for fresh air close to the ceiling in each alternate wall space, in such manner that there should be a shaft and inlet opposite each other between each opposite pair of beds. There should be neither shafts nor inlets in the wall immediately over the fire-places.

The aggregate area of the shafts should be equal to at least 18 square inches per bed for the upper floor wards and 16 square inches per bed for the lower floor wards. The aggregate area of the inlets to be equal to at least 12 square inches per bed.

The principle on which these shafts and inlets ought to be constructed has been already described in the first part of this report. Sherringham's ventilating inlets are well suited for this purpose.

Warming.—The wards may be warmed by a ventilating fire-grate placed either at the side or in the middle of the ward: in the latter case with the flues carried under the floor. One or two ventilating fire-grates will be required, according to the size of the ward. If placed in the side, the grate should be in the space under a ward window, and the flue carried up in the next wall space.

Water.—Water should be laid on hot and cold all over every hospital; to the ablution rooms, bath rooms, sculleries, and kitchens. Water tanks should never be placed under the same roof as the hospital. All water tanks should be sufficiently large and placed at a sufficient elevation to distribute water abundantly and by pressure over the whole building. The tanks should always be covered.

Drainage.—It is a cardinal principle in hospital drainage that no drain should pass under any of the buildings used for sick, or for officers or attendants. All lines of drainage should be carried clear of the external walls, and, if possible, entirely clear of the space between the pavilions. No sink pipes nor outlet pipes for waste water should be *directly* connected with any drain or sewer without free ventilation of the pipe itself. No trapping without ventilation affords an adequate protection against sewer gases passing up such pipes. They should either open directly in the open air, five or six inches over a trapped gulley grate, or over the open end of a trapped branch of a rain-water pipe connected with the line of drainage, or they should be connected with a pipe trapped below and carried up to the roof and left open. All drains should be ventilated at some distance from the hospital wards. By placing a perforated box filled with charcoal over the ventilating opening of the drain or pipe, any chance of the escape of noxious effluvia will be avoided.

Water-closets.—The water-closet soil pans should be of the best construction, the water-traps having easy curves, and each soil pipe should be ventilated by a small tube carried from it into the open air, in a position where any gas escaping from it cannot enter the building.

The supply of water should be abundant, and the flushing pipe of sufficient diameter to wash out the contents of the pan with force. Supplying water to soil pans by driblets from small pipes is worse than useless.

The closets may be made self-acting by means of the door or seat, but this should never be considered as a reason for dispensing with constant supervision of all the watercloset arrangements by the ward-master or assistant ward-master. Hard wood seats well polished are both the cleanest and most economical for use.

It would be a cleanly and wholesome expedient to cover the walls of waterclosets with white glazed tiles, bedded in cement, or to line them with white glazed bricks.

Sinks.—In the same compartment, as already mentioned, should be placed a white earthenware sink, with a water tap over it for emptying bed pans. Its construction should be similar to that of a watercloset soil pan. The pipe from it should be connected with the sewer, and ventilated like the watercloset soil pipe.

Corridors.—Connecting corridors should consist of piers and arches. They should be light and well ventilated, as they are to be used by convalescents for exercising in wet or cold weather. They should be provided with means of warming in winter.

Kitchens.—In small hospitals a cooking range, such as Flavell's or the one by Captain Marsh, R.E., containing ovens and boiler, will afford sufficient facilities for preparing diets.

In the largest class of general hospitals a proper cooking range, sufficient for boiling, stewing, roasting, baking and preparing hot water, with a few gas circles for cooking small quantities, would have to be planned to meet the specialities of each case. These cooking operations are required by the new regulations as to hospital diets.

The kitchen should always be very light and well ventilated. It should be separate from, but easily accessible under cover, from the hospital. In large general hospitals it might be advantageously connected by an arched basement with all pavilions, as is proposed to be done at Woolwich.

Lifts and Shoots.—In all large two-storey hospitals there should be lifts to convey the diets and other things to the different flats, and shoots for removing dust and foul linen. Much time and attendance would be spared by such an arrangement. The lift should pass directly up to the roof and be ventilated above, and it should not open directly into any sick ward. The dust shoot and foul linen shoot should open above on the corridor or passage, and be carried up to a louvred opening above the roof for ventilation, and each should terminate below in the basement in a small light and well-ventilated closet, with a door through which the contents could be easily removed.

Proper lifts and shoots, together with hot and cold water laid all over a hospital, will be the means of saving one orderly's duty for each ward of 30 or 32 beds.

Wash-house.—The hospital wash-house should be provided with fixed tubs. Two would in any case be required, even for the smallest hospitals. There should be means of obtaining hot and cold water to these tubs, from taps, and there should be drainage plugs to allow the water to escape into a drain outside the building. All large hospitals should have a laundry with steam apparatus, &c., at a proper distance from the hospital.

If the laundry is at some distance from the hospital, a small wash-house for bandages, &c., should be connected with the hospital itself.

The cubic contents and superficial area per washer allowed in hospital laundries should be greater than in barrack laundries, because hospital washing is apt to be more prejudicial to health. There should be plenty of light, and the ventilation should be as perfect as possible.

Dead House.—The hospital dead house should have a convenient table, water tap, sink, and proper drainage. It should be well lighted and ventilated, and sufficiently removed from the hospital to permit the air to circulate freely between the buildings. It should be conveniently placed, both for receiving the dead from the wards, and for their removal for interment. The dead house should not be overlooked by the windows of any place occupied or traversed by sick. It should be drained, supplied with water and a sink, and also with a proper table and other appliances for post-mortem examinations.

Suggestions to Public Bodies proposing the Erection of Buildings.

WHENEVER it has been determined to obtain designs for the erection of any proposed new building, or the alteration of an old one, three courses generally present themselves for consideration—1st, Unlimited Competition by public advertisement, addressed to Architects generally, inviting them to send in designs under certain conditions previously to be determined upon; 2nd, Competition between a limited number of selected Architects, under similar conditions; 3rd, The selection of one Architect.

The first two courses being those generally most popular amongst public bodies, it is desirable that it should be known what are the conditions under which Architects of position consent to send in competition designs.

In the year 1880, no less than 1,300 Architects, of every degree of standing in the profession, signed a memorial agreeing to bind themselves "not to take part in any public competition unless a professional adjudicator of established reputation is appointed;" and in the present year (1881) the following resolutions as to the conduct of competitions were agreed to by the Architects of the United Kingdom, at the Sixth General Conference of Architects, held in London, under the auspices of the Royal Institute of British Architects:—

1. That the promoters of an intended competition, as their first step, should appoint one or more professional assessors, Fellows of the Royal Institute of British Architects (of not less than 15 years' practice), whose names should be published in the original advertisements and instructions.

2. That the assessor or assessors ought to draw up the particulars and conditions, or advise upon and supplement them if already drawn up.

3. That the decision of the assessor or assessors ought to govern the choice unless insuperable objections shall arise.

4. That competitions should be initiated either (A) by inviting preliminary sketches involving only moderate cost to each competitor, preparatory to a final competition, or (B) by personal invitation without sketches.

If A,—by advertisement, inviting architects willing to compete for (here describe the intended work) to send in their names by a given day, on receipt of which each applicant will be supplied with the instructions prepared under the advice of the professional assessors. Each applicant from such instructions to send in by a given date a sketch design (here describe limit and character of such sketches). The promoters, with the advice of the professional assessors, will select from such sketch designs not less than (here specify the number), the authors of which shall be invited to join in a final competition, in which each shall receive for the preparation of his design a sum to be fixed by the promoters, with the advice of the assessors. From these designs a choice to be made of the architect to carry out the work.

If (B) without sketches,—by advertisement, inviting architects, willing to compete for (here describe the intended work) to send in their names by a given day, with such other information as the candidate may think likely to advance his claim to be admitted to the competition. From these names the promoters, with the advice of the professional assessors, will select (here specify the number) to compete; and each competitor thus selected will receive £ (here state the amount) for the preparation of his design. From these designs a choice to be made of the architect to carry out the work.

5. That the eventual employment of the author of the best design, as the only real prize of the competition, ought to be considered an obligation of honour if it can reasonably be accomplished.

6. That every member of the body promoting the competition, and every assessor, must necessarily abstain from taking part in the competition, or acting as architect in the execution of the proposed work.

7. That the work, if carried out in any shape, should be placed in the hands of the architect whose design has been adjudged to be the best, and he should be thereby placed in exactly the same position in relation to the employer and the intended work, as he would have been had he alone been professionally consulted.

8. That in case a competition has resulted in the selection of an architect, and the instructions to him to proceed further in the matter are not given within twelve months from the time of the architect being so selected, he should be paid at the usual professional rate, under the advice of the assessors, inclusive of the sum paid to him in common with the other competitors, and such payment should be taken on account of commission, should the work be at a future time carried out from the design submitted by him in competition, and under his superintendence.

9. That if the employer desires to possess or retain any other of the designs, except the one adjudged to be the best, he should have the opportunity of doing so by making payment to the author (if he be willing to part with his drawings).

10. That when preliminary sketches are submitted, each competitor should be at liberty to sign his sketches or adopt a motto; but in all other cases he should sign his name to his drawings.

11. That the Council of the Royal Institute of British Architects be respectfully requested to take the initiative in establishing a system of competition on the above basis: and in procuring for it the adhesion of the whole profession throughout the country.

These, then, would appear to be the only conditions under which Architects of good standing can in future send in competition designs; and unless, therefore, a Public Board is prepared to adopt these conditions, or to be content with the services of a second or third-rate adviser, it would be better not to resort to competition.

It must not, however, be supposed, even though the foregoing conditions are observed, that Architects of position will often be tempted to send in designs in reply to a public advertisement. The building must be of a particularly important character, or some other

remarkable inducement must generally present itself, before an Architect in full practice will entertain the idea of risking the loss of valuable time that must result to the majority of those who enter into a competition.

It is undoubtedly better for the members of a Board to agree among themselves as to the appointment of an Architect in whose judgment they feel they can place implicit confidence, and from the first to consult with him as to the carrying out of any proposed building scheme. They may not always care to pledge themselves to the adoption of his advice, nor is this necessary; it will be quite easy to arrange beforehand what shall be his fee for preliminary consultations and sketch plans, and if these are not found to be in accordance with the wishes of the Members, the matter need proceed no further, and it will then be quite competent for the Board to seek another adviser.

Certainly, no public building of the kind illustrated in this book can be properly designed without repeated conferences between the Board of Management and its Architect, and in the case of alterations and additions to existing buildings, the Architect should have the opportunity of consulting the principal officers of the establishment as to the details of the administrative and other portions of the plan; but this is not all, it must be remembered, that in the case of buildings erected by Poor Law Guardians it is necessary that the consent of the Local Government Board should be obtained before any proposed building scheme can be carried out; and it is therefore desirable, in order to avoid useless labour, that the Architect and other Officials of the Local Government Board should be consulted by the Architect of the proposed buildings during the preparation of the plans. These essential steps to the production of a satisfactory design are obliged to be foregone where the system of competition obtains, and in such cases the result not only leads to much useless expenditure of time and money, but bitter feelings of annoyance are almost certain to arise at the rejection, by the Local Government Board, of designs based upon competitive instructions carefully prepared by a Board of Guardians, often after much laborious consideration. This is a matter of common occurrence, and only recently in the case of a competition where the three premiated plans for a new building had been submitted to the Local Government Board for selection, neither were such as the authorities could sanction, and consequently the first premiated design had to be re-designed.